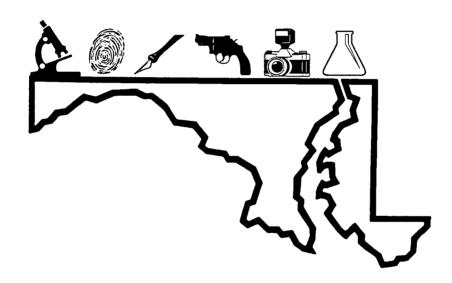
Report of the Maryland Statewide Forensic Sciences Task Force



September 2001

Parris N. Glendening, Governor Kathleen Kennedy Townsend, Lt. Governor

Colonel David B. Mitchell, Secretary, Dept. of State Police Chairman

In Memory of Dr. John E. Smialek January 18, 1943 - May 9, 2001

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MARYLAND STATE ARCHIVES

"There is no such thing as a natural death: nothing that happens to a man is ever natural, since his presence calls the world into question.

All men must die: but for every man his death is an accident and, even if he knows it and consents to it, an unjustifiable violation."

Simone de Beauvoir

Dr. John Smialek called the world into question because of the nature of his work, and he understood better than most the ambiguity, complexity, and fragility of life. His route to the OCME began in Toronto, with professional stops in Detroit and Albuquerque. Any outline of his professional career merely hints at his commitment to forensic science. He started as a coroner in Thunder Bay, Canada and later became the sole physician in Marathon, North-western Ontario with a population of 4,000. He came to the United States as the Associate and then Deputy Medical Examiner in Detroit. While in Detroit, he was also the project co-director of the Michigan Regional SIDS Center. He then moved to Albuquerque to become the Chief Medical Investigator for New Mexico. He arrived in Baltimore in 1986 to become the Chief Medical Examiner for the State of Maryland. No resume could tell Dr. Smialek's story. It certainly does not tell of his providing fresh insights and working to reorganize and renovate the OCME. Nor does it tell of his being a demanding, principled, yet supportive Chief Medical Examiner. Nor does it speak of his rigorous, scientific, and uncompromising approach to forensic medicine.

Silver-haired, highly charged, with dry wit, with the bearing of a scientist, Dr. Smialek was a strong presence. His insistence, as a medical examiner, upon never saying anything in a predictable, or even a convenient, way, his compulsion to reach for unusual conclusions, reflected not simply a fondness for surprise, but also a refusal to permit his thought to fall into patterns.

As medical examiner, Dr. Smialek interacted with various disciplines and agencies. He was a faculty member in the Pathology Department at the University of Maryland Medical School, and he had close ties with the pediatrics and psychiatry department and the Trauma Center. He also closely collaborated with the police and fire departments and established interdisciplinary programs with the Johns Hopkins School of Public Health and the Armed Forces Institute of Pathology. A major research interest of Dr. Smialek's was sudden infant death, and he assisted in the creation of guidelines for the investigation of SIDS. Dr. Smialek's professional activities included his being on the editorial boards of the American Journal of Forensic Medicine and Pathology and the Journal of Forensic Sciences. He was also the author of numerous articles in the field of forensics.

As Chief Medical Examiner for the State of Maryland, Dr. Smialek grappled with life's grand themes and its petty details. Those challenges did not discourage him from being a committed scientists who brought passionate energy and intelligence to his job. Despite experiencing death on a daily basis, he never lost his love and zest for life, his continuous quest for knowledge, or his search for truth.

He was a man who believed in science, but who witnessed the human folly of everyday life. For the victims of that folly, he possessed that rare combination of clinical detachment and emotional caring. The architecture of Dr. Smialek's life is a scaffold replete with accomplishments; but more importantly, he tried to comprehend the waste of human life he saw on a daily basis and through science tried to prevent its occurrence.

MARYLAND STATEWIDE FORENSIC SCIENCES TASK FORCE

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SUBCOMMITTEE - QUALITY AND ACCREDITATION

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GOVERNOR'S TASK FORCE EXECUTIVE SUMMARY

TASK FORCE EXECUTIVE SUMMARY

Recognizing the importance of improving forensic service in Maryland, Governor Parris N. Glendening issued an Executive Order 01.01.2000.04 on January 27, 2000 establishing a Maryland Statewide Forensic Sciences Task Force to enhance the quality of forensic services in Maryland; coordinate efforts for accreditation, training, equipment and seek federal funds by establishing a statewide "Master Plan" for delivery of services. See Attachment #1 for the text of the Executive Order. Last year Congress passed a law entitled the "Paul Coverdell National Forensic Science Improvement Act of 2000" which will provide funds to each state to improve forensic science within the state, but only if the state had a consolidated "Master Plan." This entailed establishing cooperative working procedures among all crime laboratories in the State, developing staff training guidelines and offering technical advise to crime laboratories who are seeking their accreditation. Refer to Attachment #2 for the text of this Act.

The Task Force consisted of 15 members including the Secretary of The Department of State Police as Chairman, Secretary of the Department of Public Safety & Correctional Services, the Chief Medical Examiner from the O.C.M.E., 11 directors/managers from Maryland crime laboratories, a representative from the Senate, House of Delegates, and the FBI Laboratory. See page i for a complete listing of members of the Task Force.

The first Task Force Meeting was held on August the 24th, the Chairman, David B. Mitchell established three subcommittees:

1. Master Plan Survey Subcommittee

This subcommittee was responsible for developing an RFP to select a consulting firm to conduct a statewide survey of each law enforcement agency, crime laboratory and court system; provide guidance to the firm throughout the process and report their findings to the Task Force. This was accomplished with the aid of a grant through the Governor's Office of Crime Control and Prevention. The selected firm, the National Forensic Science Technology Center, provided observations on current levels forensic service and gave advise on short and long range ways for improvements statewide. See page 9 for the full subcommittee report and see Attachment #4 for the full consultant report.

2. Training and Equipment Subcommittee

This subcommittee was responsible to recommend training standards for each forensic discipline, and recommend new equipment and technology that would improve service. See page 11 for the full subcommittee report.

TASK FORCE EXECUTIVE SUMMARY

(Continued)

3. Quality and Accreditation Subcommittee

This subcommittee was responsible for recommending to the Task Force how to proceed with accreditation and quality standards implementation. See page 17 for the full subcommittee report.

The Task Force met on seven occasions throughout the past twelve months in an open forum. Each subcommittee met on several occasions independent of the Task Force meetings to carry out their assignments. In addition the Internet e-mail system and fax machines were used to great advantage to exchange information between members. The subcommittee chairs presented their progress at each of the Task Force Meetings. On September the 6th the National Forensic Science Technology Center findings were presented to the Task Force by their director of forensic research, Mr. David Epstein. Refer to Attachment #4, Section 3, page 27, of their report for consultant recommendations.

On September the 20th the Task Force met to discuss and debate the recommendations generated separately by the work of all three subcommittees. This meeting resulted in twelve distinct recommendations by the Task Force being crafted from the subcommittee recommendations including the consultant report. These twelve recommendations were voted on, passed by unanimous vote and are listed in the following section.

TASK FORCE RECOMMENDATIONS

TASK FORCE RECOMMENDATIONS

1. A crime/forensic laboratory shall be defined in accordance with the American Society of Crime Laboratory Directors/Laboratory Accreditation Board (ASCLD/LAB®): "A laboratory (with at least one full-time scientist) which examines physical evidence in criminal matters and provides opinion testimony with respect to such physical evidence in a court of law." (Unanimously Passed)

DISCUSSION:

- In order to understand the applicability of accreditation to the variety of laboratories and agencies performing forensic analysis in the State of Maryland, it is necessary to define a crime/forensic laboratory. The Maryland Statewide Forensic Science Task Force has elected to accept the definition of the American Society of Crime Laboratory Directors/Laboratory Accreditation Board (ASCLD/LAB®), the internationally recognized accrediting body for crime/forensic laboratories.
- 2. All public crime/forensic laboratories, which meet the definition of Recommendation #1 shall be accredited by the American Society of Crime Laboratory Directors/ Laboratory Accreditation Board (ASCLD/LAB®) by 2006. The Office of the Chief Medical Examiner (OCME) shall maintain accreditation through the National Association of Medical Examiners (NAME) and American Board of Forensic Toxicology (ABFT). Adequate funding shall be provided to ensure that each public crime/forensic laboratory meet and maintain accreditation. (Unanimously Passed)

DISCUSSION:

Properties that the highest quality of forensic work is being performed by all crime/forensic laboratories in Maryland is to legislate a mandate of accreditation by the only currently recognized crime/forensic laboratory accrediting organization in the United States (ASCLD/LAB®) dealing strictly with forensic laboratories. This recommendation not only has a dramatic affect on the named crime/forensic laboratories on the task force but numerous other allied departments that are performing one or more forensic service in their agency. In order to comply with this mandate, every laboratory will need financial assistance from local, state and/or federal sources to meet accreditation standards and continued assistance to maintain accreditation. Refer to recommendations 2,3, &4 of the Quality and Accreditation Committee on pages 20-22 and 3.2.8 of the consultant report on Needs Assessment of Forensic Laboratory Services in the State of Maryland in Attachment # 4 for further discussion.

3. Adequate funding shall be provided to each public crime/forensic laboratory to address staffing, equipment and facility needs as identified by the Maryland Statewide Forensic Sciences Task Force and the *Needs Assessment of Forensic Laboratory Services in the State of Maryland* Report. (Unanimously Passed)

DISCUSSION:

- The demands and expectations placed on crime/forensic laboratories are enormous. It is imperative that Maryland's laboratories have adequate well trained staff with the proper equipment and facilities to meet these needs in a timely fashion. The majority of forensic laboratories experience substantial backlogs in existing casework. Numerous situations exist that prevent the full utilization of forensic technology. Unaddressed casework affects the ability to meaningfully assist in ongoing investigations, and it is often a struggle to complete case work by the trial date. Reduction of backlogs by enhancement of staffing levels, upgrading equipment and /or expansion of facilities can be accomplished with a determined effort at the local, state and national levels. For further discussion refer to the Needs Assessment of Forensic Laboratory Services in the State of Maryland, Chapter 2, on individual laboratory findings Attachment # 4, the Quality and Accreditation Committee report pages 20-30, and the Training and Equipment Report pages 15 and 16.
- 4. Salary levels should be appropriate to ensure that bright qualified individuals are hired and retained as forensic experts in each discipline. The Maryland Statewide Forensic Sciences Task Force shall conduct and publish an annual salary survey to aid in identifying appropriate levels of compensation. (Unanimously Passed)

DISCUSSION:

Results of a survey conducted last April by the Maryland State Police indicated that in all categories, salaries of federal laboratories exceeded those of state and local laboratories. Surveys of the entire scientific community are conducted annually by the various scientific organizations. These surveys indicate that a scientist in industry can expect to earn significantly more over time than those in the forensic sciences. In addition, the close proximity of different agency forensic laboratories within the State has led to a migration back and forth between laboratories as one department gets the salary edge over its neighbors. There is a need to improve salaries across the State and to explore methods to equalize salaries and benefits statewide in order to compete with the surrounding jurisdictions. Refer to the Quality and Accreditation Committee Report on page 27, the Training and Equipment Report pages 15 and 16 and the Needs Assessment of Forensic Laboratory Services in the State of Maryland Attachment # 4.

5. All public crime/forensic laboratory personnel shall be encouraged to attain and maintain professional certification. Adequate funding shall be provided for laboratory personnel to achieve and maintain certification. (Unanimously Passed)

DISCUSSION:

- While accreditation of laboratories looks at the quality of forensic laboratories by units, it is important that every person on a laboratory's staff demonstrates his/her professional qualifications to be a practicing forensic expert in their discipline(s). The laboratories should be supported with funding to assist their staff in obtaining the recommended certification. Statewide study groups should be formed to provide assistance in examination preparation. Refer to recommendations 7 and 8 of the Quality and Accreditation Committee on pages 24-25 and to 3.2.10 of the consultant report on Needs Assessment of Forensic Laboratory Services in the State of Maryland in Attachment # 4 for further discussion.
- 6. All public crime/forensic laboratories are required to adhere to the guidelines established by the nationally recognized Scientific Working Groups (SWGs) for each forensic discipline, including required training. (Unanimously Passed)

DISCUSSION:

- It is extremely important that every crime/forensic laboratory use an accepted standard set of operating guidelines. Scientific Working Groups (SWGs) have been established for various forensic disciplines to provide guidelines for technical procedures, quality assurance, evidence handling, proficiency testing, training and education and report writing. The Federal Bureau of Investigation has sponsored the majority of the Scientific Working Groups (SWGs). Members of the SWGs include forensic scientists from various state, local and federal laboratories throughout the United States. Refer to the Training and Equipment Committee report on pages 13 and 16 and the Quality and Accreditation Report on page 23-24 for further discussion.
- 7. A Forensic Science Training Working Group shall be established to oversee the formation of a Maryland Forensic Science Academy. The objective is to ensure that all forensic scientists, regardless of the laboratory that employs them, receive adequate education and training in the relevant disciplines. (Unanimously Passed)

DISCUSSION:

- Training of forensic scientists in Maryland needs to be unified. Most of the laboratories rely on current employees who are already experts in their discipline to train newly hired employees while maintaining their casework. This one-on-one mentoring is not as effective or as efficient as a consolidated program with staff dedicated to training. Some laboratories have funds for outside training but most do not have sufficient funds for the number of current staff. Refer to the Training and Equipment Committee report on page 13, the Quality and Accreditation Report on page 27, and 3.2.6 of the Needs Assessment of Forensic Laboratory Services in the State of Maryland in Attachment # 4 for further discussion.
- 8. The Maryland Forensic Science Academy shall establish a training program for all crime scene technicians and others that collect forensic evidence. (Unanimously Passed)

DISCUSSION:

- There exists a Maryland Interagency Crime Scene Evidence Committee (MICSEC) that has developed information concerning training of personnel tasked with evidence collection. Based on a survey of various police departments, a need for unified training was identified. See Attachment # 6 for the results of this survey. Additionally the MICSEC has established a Crime Scene Module that outlines minimum recommendations for personnel, hours of operation, salaries, training and equipment for crime scene personnel. See Attachment # 7 for this module. Because many crime scene technicians in Maryland are sworn officers, a consolidated training program could be established in cooperation with the Maryland Police and Correctional Training Commissions. A proposed course outline for crime scene technicians has been developed by the MICSEC. See Attachment #8. This training should include those that collect evidence at the hospitals and medical examiner locations. For further discussion refer to the Quality and Accreditation report pages 28-29 and Training and Equipment report page 14.
- 9. Adequate funding shall be provided to each laboratory to ensure that all public crime/forensic laboratories have adequate Laboratory Information Management Systems (LIMS); communications and connectivity throughout the criminal justice system should be optimized. (Unanimously Passed)

DISCUSSION:

- Laboratory Information Systems (LIMS) are used throughout the scientific world to improve efficiency and quality of the work product. Several are in use in forensic laboratories including some in Maryland to assist with tracking evidence, managing the chain-of- custody of each item, organizing the analytical data, creating reports for court and other management needs. Establishment of a successful LIMS system with the necessary qualified support staff for the entire crime/forensic laboratory community in Maryland would vastly improve efficiency and assist the courts in timely prosecution of cases. Funding should be sought from all sources to address this issue. For further discussion refer to 3.2.7 in the Needs Assessment of Forensic Laboratory Services in the State of Maryland Attachment # 4 and the Training and Equipment Committee report page 15.
- 10. Any public crime/forensic laboratory or law enforcement agency that outsources or subcontracts forensic casework shall ensure that the outsourced or subcontracted party complies with acceptable scientific standards established for the test requested. (Unanimously Passed)

DISCUSSION:

- Accredited or certified laboratories should be used for outsourced or subcontracted forensic work. These laboratories should provide documentation to prove accreditation/ certification in good standing. Guidelines established by the Scientific Working Groups (SWGs) should be used by these laboratories.
- 11. A Code of Ethics shall be established to ensure that the highest level of integrity and professional standards are maintained throughout all public crime/forensic laboratories, including crime scene units. (Unanimously Passed)

DISCUSSION:

Although there have been only a few occurrences of unethical performances of forensic personnel in this country, it takes only one to destroy the reputation of a laboratory. Forensic personnel are expected to meet the highest standards. Quality assurance does not just occur with the adherence to a quality assurance program but also requires professional ethical conduct on the part of all forensic personnel. Crime/forensic laboratories must avoid any activity, interest or association that interferes or appears to interfere with their independent exercise of professional judgement. The confidentiality of work and information must be protected.

12. The Maryland Statewide Forensic Sciences Task Force shall become the Maryland Interagency Forensic Science Advisory Board. The mission of the Board is to provide oversight for the implementation of recommendations made by the Task Force as well as to establish future guidelines for forensic science standards in the State of Maryland. (Unanimously Passed)

DISCUSSION:

In order to fully develop the recommendations made in this report, extensive time and research is needed. Recommendations concerning the establishment of mandated accreditation, statewide training programs, determining adequate salary levels, and obtaining the best LIMS system to pursue will take more time and effort. The major need of the Advisory Board is to identify and obtain sufficient resources to implement these recommendations. Consistent with the recommendations, COMAR 10.10.09 shall be reviewed and revised. Refer to the Quality and Accreditation Committee report page 23, the Training and Equipment Committee Report page 16 and 3.2 of the Needs Assessment of Forensic Laboratory Services in the State of Maryland Attachment # 4.

TASK FORCE SUBCOMMITTEE REPORTS

A. MASTER PLAN SUBCOMMITTEE

A. MASTER PLAN SUBCOMMITTEE

Chair, Dr. Louis C. Portis, Director, Maryland State Police Crime Laboratory

Members of the Committee:

Jane Cooke, Director, Anne Arundel County Police Crime Laboratory Richard Gervasoni, Chief Forensic Scientist, Montgomery County Police Crime Laboratory Joseph Getty, Maryland House of Delegates Edgar Koch, Sr., Director, Baltimore Police Crime Laboratory

This subcommittee was directed to develop an RFP for the selection of a consulting firm to conduct a statewide survey of each law enforcement agency, crime laboratory, and court system.

- A. The survey should establish current levels of forensic services, and
- B. Make recommendations for A Statewide Master Plan

The subcommittee should guide the selected firm throughout the process with questions and responses. Finally, the committee should review the final consultant report for presentation to the Task Force.

In order to fund the selected consultant firm, a grant was obtained from the Governor's Office of Crime Control & Prevention in an original amount of \$62,500. As it turned out, this amount was later supplemented to make the total grant amount \$97,270 to accommodate the lowest bid.

The subcommittee met several times to develop the scope of the involvement of a consulting firm as well as the credentials required by the consultant firm to demonstrate their expertise in the various areas of forensic science. The scope of the project was then forwarded to the Maryland State Police Quartermaster Division to complete the RFP for this project. For a copy of the Scope as developed refer to Attachment #3.

The Master Plan Subcommittee met on January 23, 2001 for a pre-bid meeting with prospective vendors on this consultant contract. Two vendors were present and two other non-present vendors sent written comments. Eight packets were previously sent out to the prospective bidders.

The Master Plan Subcommittee again met to open and review bids on February 8, 2001. Two bids were received. Each technical proposal was reviewed and scored separately then the financial proposals were opened. The best technical score was also the lowest bidder. The lowest bid amount was for \$97,270 which exceeded the amount available from our grant. Fortunately we

were able to obtain a supplemental amount of funds to meet our needs. As a result of this RFP, the National Forensic Science Technology Center group was selected to be our consultants.

The first meeting of the Master Plan Subcommittee with the consultant firm occurred on April 10th to begin the project. After that meeting, they became actively engaged in collecting data on forensic services in Maryland. They used a three pronged approach:

- 1. They visited each of the eleven laboratories represented on the Statewide Forensic Science Task Force to evaluate each as to working space, equipment, personnel and other needs.
- 2. The consultants held an initial two day forum with volunteers from the various laboratories to get them involved in collecting the correct useful information from surveys. The volunteers were then used to help expedite the survey distributions and returns.
- 3. Surveys were then sent to the majority of the police departments, all of the State's Attorneys and to the judiciary to complete and return. The forum group met again for two days in early August to review and interpret the returned surveys.

The consultants provided a preliminary report to the subcommittee in late August by email. The Task Force members then made several comments back to the consultants for review and revision. The revised report was submitted to the Statewide Forensic Science Task force by the consultants on September the 6th in person by Mr. David Epstein, Director of Scientific Services, NFSTC. Refer to Attachment # 4 for a copy of the complete consultant report.

The recommendations from the consultants were reviewed by the Master Plan Subcommittee and presented to the Task Force for voting along with the recommendations from the other two subcommittees on September the 20th. The previous chapter discussed the Task Force recommendations and findings.

B. TRAINING AND EQUIPMENT SUBCOMMITTEE

B. TRAINING AND EQUIPMENT SUBCOMMITTEE

Chair, Dr. Jenifer AL Smith, Chief, FBI Laboratory/DNA Analyst Unit

Members of the Committee:

Timothy Ferguson, Maryland State Senate
Richard Gervasoni, Chief Forensic Scientist, Montgomery County Police Crime Laboratory
Jeffrey Kercheval, Director, Hagerstown City Police Crime Laboratory
Teresa M. Long, Forensic Chemist Manager, Maryland State Police
Clarence Polk, Forensic Chemist, Ocean City Police Crime Laboratory
Mark Profili, Criminalist Supervisor, Baltimore City Crime Laboratory

This subcommittee was directed to recommend training standards for each forensic discipline, research equipment needs and available technology as well as make recommendations concerning equipment and appropriate technology for each discipline. The committee originally consisted of four members; Jenifer Smith, Jeffrey Kercheval, Clarence Polk and Timothy Ferguson. Three additional members were invited to join following the first sub-committee meeting. They were Richard Gervasoni, Teresa Long and Mark Profili.

The subcommittee met on four occasions. It conducted a survey concerning training and equipment needs of the various forensic laboratories in Maryland. Additionally, the subcommittee researched issues concerning available guidelines on training and methods currently recommended by the various disciplinary Scientific Working Groups (SWGs). The subcommittee also investigated the various Laboratory Information Management Systems (LIMS) that are available for forensic laboratories. The subcommittee reviewed surveys and recommendations from the Maryland Interagency Crime Scene Evidence Committee (MICSEC) concerning training recommendations for Crime Scene Technicians. Below is a summary of the committee's findings on these various issues.

Results of the Training and Equipment Subcommittee Survey:

At the request of members of the sub-committee, Jeffrey Kercheval developed and distributed a survey to all forensic laboratories in the state of Maryland. Eight laboratories responded to the subcommittee's survey. See Attachment # 5 for a copy of the survey and a summary of the complete results. The following information was obtained from the survey:

A wide variety of forensic services were offered in the various laboratories. The majority of the laboratories conduct drug analyses, latent print, footwear/tire impressions, serology/DNA, and firearms/toolmarks examinations.

Training Issues

- Training of analysts is typically conducted "in-house". This type of training requires time and resources and because of high personnel turnover requires that the caseworking analysts are constantly training new hires. Additionally, concerns were expressed over inadequate funding for training and continuing education of forensic experts as well as a nationwide shortage of some forensic experts such as in disciplines such as firearms/toolmark, questioned document and trace evidence.
- Other than in-house training, a variety of external resources are used to accomplish training to include: the FBI, DEA, commercial vendors, American Academy of Forensic Sciences (AAFS), Mid-Atlantic Association of Forensic Sciences (MAAFS), IAI, American Society of Crime Laboratory Directors (ASCLD), AFTE. Concerns with external training involved the need for adequate funding and staffing to allow analysts to attend outside training classes/seminars.

All of the laboratories surveyed indicated that they would be interested in participating in a unified statewide training program.

Staffing Issues

Only two of the laboratories surveyed felt that they had adequate staff to support the law enforcement agencies that they serve. The other laboratories felt they needed more staff to combat tremendous backlog problems and to increase services that were needed. Additionally, concerns were expressed that salary levels were too low when compared to the education and experience required to perform the job duties. One participant expressed the following:

"Forensic scientists within the state laboratories are required to be proficient technical investigators for their host police agencies. They are an integral part of our criminal justice system, offering expert testimony which is scrutinized during legal proceedings. They instruct police academies and in-service training programs. They work under tremendous case-load pressures assuring that no mistakes are made. Throughout the entire state, the salaries of forensic scientists have been eclipsed by sworn police personnel who have the ability to lobby and negotiate on their own behalf."

Equipment Issues

Only three of the eight laboratories reported that they were currently using a Laboratory Information Management System (LIMS). All three laboratories are using the Porter Lee Bar Coded Evidence Analysis, Statistics and Tracking System (aka: BEAST System). Two of the three laboratories were satisfied with this system and all three responded that they were committed to using this system

- either because it was being used systemically within their police agency or because funding via a grant had been used to establish the LIMS.
- The ability to obtain equipment was a concern for some of the laboratories.

 Limited budgets made it difficult to obtain equipment and timely service contracts on major items.

The following recommendations are proposed by the Training and Equipment Subcommittee to address the original assignment as well as the previously mentioned issues raised by the subcommittee's survey.

Recommendations for Training

1. All forensic laboratories in Maryland should establish training programs in accordance to training guidelines established by the Scientific Working Groups (SWGs).

Currently several Scientific Working Groups (SWGs) have been established to address technical issues relevant to the various forensic science disciplines. Though established by the FBI, members of the SWGs include forensic scientists from various state, local and federal laboratories from throughout the United States. Each SWG is responsible for developing guidelines for quality assurance, quality control, training, interpretation and other issues that may be pertinent to their particular discipline. See Table 1 for a list of the various SWGs, disciplines they cover and the current chairpersons. All SWGs have been tasked with developing training guidelines. It is the recommendation of this subcommittee that all forensic laboratories in Maryland should establish training programs in accordance with the relevant SWG guidelines.

2. A joint training program should be established within Maryland. The mission of this program should be to ensure that all forensic scientists, regardless of the laboratory that employs them, receive adequate training in relevant disciplines. A Forensic Science Training Working Group should be established to further explore the potential approaches and costs associated with the formation of a Maryland Forensic Science Academy.

Though several of the laboratories surveyed indicated that they receive some outside assistance in training of forensic scientists, the majority of training is conducted "in-house" by currently qualified analysts. All of the laboratories expressed an interest in a unified training program. Most of the laboratories rely on analysts who are expected to conduct training concurrently with casework. This one-on-one mentoring approach is not as effective or as efficient as a consolidated program with staff dedicated to training. The National Forensic Science Training Center (NFSTC) has estimated that it costs a laboratory between \$60,000 to \$120,000 to train an analyst through an individualized course. These costs can be reduced to approximately \$10,000/person if an analyst is trained as a part of a group.

Several approaches to group/joint training may be possible. Currently, the Baltimore City Police Department has created a training program in partnership with the University of Baltimore. This program includes classroom instruction as well as internships within the forensic laboratory. This type of training program should prove effective at supplying a steady supply of analysts for certain forensic disciplines. However, this approach may not meet the needs of smaller laboratories who are not able to accommodate non-permanent employee interns. Additionally, this long-term approach may not meet the needs of individuals with prior forensic experience who may need training to learn a new method that has been recently implemented or those individuals who require re-training due to an extended absence from the field.

Another approach that should be explored would be the establishment of a Maryland Forensic Science Academy. Law enforcement agencies have long recognized the advantage of basic training of new recruits prior to their release to active duty. A similar model could be established for forensic scientists in Maryland. NFSTC has developed a similar program for the State of Florida. Recommendations for establishment of such a joint training facility would include the following:

- Dedicated staff should be hired to develop, coordinated and administer the programs. This would include a Training Coordinator and an Administrative Assistant.
- Faculty/Subject specialty instructors would be drawn from experienced analysts from within Maryland or from other law enforcement agencies who may wish to partner with Maryland in this effort.
- Curriculum would be based on guidelines established by the various SWGs as well as a core curriculum covering general topics such as evidence handling, ethics, expert witness testimony, moot courts, quality assurance/quality control and any other general topics related to forensic science. This curriculum would ensure that upon completion, trainees would return to their respective laboratory prepared for supervised casework.
 - 3. A training program should be established for all crime scene technicians.

 Because many laboratories utilize sworn officers to collect evidence, a training program should be established through the offices of the Maryland Police Training Commission.

The training and equipment subcommittee received information from the Maryland Interagency Crime Scene Evidence Committee (MICSEC) concerning training of personnel tasked with evidence collection. Based on a survey of various police departments, a need for unified training was identified. See Attachment # 6 for results of the MICSEC survey. Additionally, the MICSEC established a Crime Scene Module that outlines minimum requirements for personnel, hours of operation, salaries, training, and equipment. See Attachment # 7 for the MICSEC Crime Scene Module. Because the many crime scene technicians in Maryland are sworn officers, a consolidated training program could be established using the office of the Maryland Police Training Commission. The MICSEC has proposed a course outline for a Crime Scene Technician Training Module. See Attachment # 8 for the MICSEC proposed course outline for crime scene technicians.

Recommendations for Equipment

4. Adequate funding should be provided to each laboratory to ensure that all Maryland laboratories have an adequate Laboratory Information Management System (LIMS).

Laboratory information management systems (LIMS) are intended to assist laboratories as a case management tool. These software systems can assist with tracking of evidence, analytical results, reagent inventory and other case management issues. Currently numerous vendors exist which offer a variety of approaches that could be tailored to needs of the laboratory. Establishment of a successful LIMS could greatly improve the efficiency of laboratory performance. Cost for LIMS will vary according to the complexity of the system, needs and size of the laboratory.

5. Adequate funding should be provided to each laboratory to enhance current computer and information technology needs.

Adequate funding should be provided to each laboratory to enhance current computer and information technology (IT) needs. This could include the establishment of information technology specialists for each laboratory or the procurement of a statewide contract that would provide information technology specialists to any laboratories interested in partnering for IT services. Several joint law enforcement software systems such as CODIS, NIBIN and IAFIS require the services of competent IT specialists. Though these services may currently be present in some of the laboratories, all of the laboratories could benefit from additional assistance.

6. Adequate funding should be provided to each laboratory to address staffing, equipment and facility needs as identified by the NFSTC.

The majority of forensic laboratories experience substantial backlogs in casework. Unaddressed casework affects the ability to meaningfully assist in ongoing investigations. Obtaining information as quickly as possible is critical in the initial stages of an investigation. Significant backlogs prevent this. Reduction of backlogs by enhancement of staffing levels, upgrades in equipment and/or expansion of facilities. The NFSTC report assesses the staffing/equipment and facility needs of each laboratory in Maryland. Laboratories should be provided sufficient funding to purchase equipment, increase staffs and expand facilities commensurate with the recommendations of the NFSTC.

7. Salary levels should be examined to determine if they are appropriate to ensure that qualified individuals are obtained and retained as forensic experts in relevant disciplines.

In April,2000, the Maryland State Police Laboratory issued results of a survey conducted of federal, state and local forensic laboratories located in or near Maryland concerning salaries for forensic scientists. Results of this survey indicated that in all categories, salaries at the federal laboratories exceeded those of the local or state laboratories. Additionally, it provided minimum and maximum salaries for various positions. This survey provides

information that can be compared to national surveys concerning salary levels for individuals with science degrees from academia or industry.. Surveys conducted by Chemical and Engineering News in July of 1998 indicate that chemists that live either on the West or East coast command higher salaries than those in the middle of the United States. A survey by The Scientist in Dec. of 2000 reported that the average starting salary offer for biological and life scientists with a Bachelor of Science degree was \$29,000. However, this survey also indicates salaries were higher for those individuals working in the Biotech industry. According to the report, scientists with PhDs in biology, chemistry and molecular biology with no work experience were starting at an average salary of \$55,700. For those with MS degrees in the same fields, the average salary was \$40,600 and \$32,500 for those with bachelor's degrees in the same fields. Individuals that remain in industry can expect that their salaries will increase substantially as industry reports the highest average salaries of all scientific disciplines. This should be of interest because of the proximity of several biotech firms within or near Maryland.

8. Either the Maryland State Task Force or a subgroup of such should be extended in order to expand and create implementation plans for the recommendations mentioned previously.

Additional time is needed to fully develop some of the recommendations made in this report. Recommendations concerning the establishment of a statewide training program, determinations of adequate salary levels and the potential costs of implementation of LIMS and other IT capabilities have been stated generally for the purpose of this report. Substantial work remains to ensure that these recommendations are fully realized.

Table 1. Scientific Working Groups (SWGs)

| SWG | Methods | Chairperson | Phone number |
|---------|-------------------------------------|----------------------|---------------|
| SWGDAM | DNA | Richard Guerrieri | 202-324- 1784 |
| SWGDOC | Questioned Documents | Ted Burkes | 202-324-4454 |
| SWGDE | Digital Evidence | Mark Pollitt | 202-324-9314 |
| SWGFAST | Latent Fingerprints | Alan McRoberts | 213-989-5091 |
| SWGFAX | Forensic Archiving of X-ray Spectra | Dennis Ward | 202-324-2982 |
| SWGGUN | Firearms and Toolmarks | Loren Sugarman | 714-834-6380 |
| SWGIT | Image Technologies | Richard VorderBrugge | 202-324-0492 |
| SWGMAT | Materials | Max Houck | 202-324-4347 |

C. QUALITY AND ACCREDITATION SUBCOMMITTEE

C. QUALITY AND ACCREDITATION SUBCOMMITTEE

Chair, Karen L. Irish, Director, Baltimore County Police Dept. Forensic Services Section

Members of the Committee:

David Fowler, M.D., Assistant Chief, Medical Examiner's Office John E. Smialek, M.D., Chief, Medical Examiner's Office John Taylor, Department of Public Safety and Correctional Services William T. Vosburgh, DDS, Director, Prince George's County Police Crime Laboratory

The Quality and Accreditation Committee was directed to recommend procedures to assist all of Maryland's forensic laboratories in obtaining accreditation and maintaining quality standards.

Quality Assurance Survey

The committee conducted a Quality Assurance Survey to determine the present status of quality assurance and accreditation of the forensic laboratories in Maryland. (See Attachment 9.) The major forensic laboratories surveyed were:

Anne Arundel County Police Department Crime Laboratory
Baltimore Police Department Laboratory Section
Baltimore County Police Department Forensic Services Section
Hagerstown Police Department Western Maryland Regional Crime Lab
Maryland State Police Crime Laboratory Division

- Berlin Laboratory
- Pikesville Laboratory
- Hagerstown Laboratory

Montgomery County Police Department Crime Laboratory
Ocean City Police Department
Office of the Chief Medical Examiner
Prince George's County Police Department Crime Laboratory

Accredited Laboratories

Of the eleven major forensic laboratories only six are accredited:

American Society of Crime Laboratory Directors/Laboratory Accreditation Board (ASCLD/LAB®)

Anne Arundel County Police Department Crime Laboratory Baltimore County Police Department Forensic Services Section Maryland State Police Crime Laboratory Division

- ► Berlin Laboratory
- Pikesville Laboratory
- Hagerstown Laboratory

<u>National Association of Medical Examiners (NAME) and American Board of Forensic Toxicology</u> (ABFT)

Office of the Chief Medical Examiner

Summary of Survey Results

- The accredited laboratories meet quality control/quality assurance standards specified by their accrediting bodies.
- The surveyed laboratories have some form of quality control/quality assurance program. However, in one or more laboratories specific minimum requirements for an adequate quality control/quality assurance program are either insufficient or absent:
 - Person assigned to oversee quality assurance (Quality Assurance Manager)
 - Perform annual quality audits
 - Written quality assurance manuals
 - Written and documented training programs in each discipline
 - · Proficiency testing
 - Written procedure for corrective action
 - Monitor personnel's court room testimony annually
 - Written procedures for case documentation
 - Peer review of case reports for technical correctness
 - Written procedures for ensuring quality and reliability of reagents and standards
 - Written procedures for the scientific validation and verification of new technical methods
 - Written procedures for quality control testing of instruments/equipment
 - Written procedures for addressing analytical discrepancies
 - Annual review of the quality system (quality assurance manual, standard operating procedures, training procedures, etc.)

| u | BLIND proficiency testing is occurring in only one laboratory; however, the majority of the laboratories stated they would participate in a state program. |
|----------|---|
| | Certification of personnel in their specified disciplines is lacking. In the state only twelve scientists have received American Board of Criminalistics certification, nine have received International Association for Identification certification, two have received Association of Firearm and Toolmark Examiners certification and two American Board of Forensic Toxicology certification. The State of Maryland Department of Health and Mental Hygiene certifies all personnel analyzing drugs as required by COMAR 10.10.09. |
| | Most laboratories lacked a fully integrated electronic evidence tracking system. |
| | Three laboratories lacked preventive maintenance contracts for their instruments/ equipment. |
| | All laboratories are following guidelines established by the Scientific Working Groups (SWG) and the DNA Advisory Board (DAB) if applicable to the disciplines in their laboratories. Some non-accredited laboratories are incorporating American Society of Crime Laboratory Directors/Laboratory Accreditation Board (ASCLD/LAB®) standards and criteria into there procedures. Additionally some laboratories are incorporating applicable standards from the American Society of Testing and Materials (ASTM) and the International Organization for Standardization (ISO 17025 - General requirements for the competence of testing and calibration laboratories). |
| | In some cases evidence being out-sourced for analysis is not being sent to an accredited or certified laboratory. |
| | Not all laboratories are receiving sexual assault evidence which has been collected by forensic nurses, who are trained through or participate in a forensic nursing program, such as Sexual Assault Response Team (S.A.N.E.) or Sexual Assault Forensic Examiner (S.A.F.E.). |
| <u> </u> | All five unaccredited laboratories want to seek accreditation, but feel certain constraints due to the following: |
| | Agency support Budgetary restraints Lack of personnel |

It was felt that if a state plan was implemented which required accreditation and funding and personnel assistance was provided, their laboratories could become accredited.

In order to seek accreditation the laboratories listed the following needs:

- Federal, state and local funding
- Additional personnel
- Upgraded instrumentation/equipment
- Support of their agency and local government

- Personnel to perform quality assurance duties
- New or upgraded facilities
- Consolidation of laboratory disciplines and management
- Assistance from laboratories who are accredited
- Time

Recommendation of the Quality and Accreditation Committee

1. A crime/forensic laboratory shall be defined in accordance with the American Society of Crime Laboratory Directors/Laboratory Accreditation Board (ASCLD/LAB®):

"A laboratory (with at least one full-time scientist) which examines physical evidence in criminal matters and provides opinion testimony with respect to such physical evidence in a court of law."

In order to understand the applicability of accreditation to the variety of laboratories and agencies performing forensic analyses in the State of Maryland, it is necessary to define a crime/forensic laboratory. The Statewide Forensic Science Task Force has elected to accept the definition of the American Society of Crime Laboratory Directors/Laboratory Accreditation Board (ASCLD/LAB®), the internationally recognized accrediting body for crime/forensic laboratories.

2. All public crime/forensic laboratories, which meet the American Society of Crime Laboratory Directors/Laboratory Accreditation Board (ASCLD/LAB®) definition of a crime/forensic laboratory as define in Recommendation 1, shall be accredited by the American Society of Crime Laboratory Directors/Laboratory Accreditation Board (ASCLD/LAB®) by 2006.

In order to ensure the highest quality forensic work to the Maryland criminal justice system all public crime/ forensic laboratories must be accredited. Accreditation must apply to all crime/forensic laboratories or police agencies performing forensic analysis (exception is noted in Recommendation 3) performing examinations on forensic evidence, which includes biology, controlled substances (drugs), firearms/toolmarks, footwear/tire tracks, latent prints, questioned documents, serology, toxicology, and trace evidence.

The American Society of Crime Laboratory Directors/Laboratory Accreditation Board (ASCLD/LAB®) is the recognized accrediting body for crime/forensic laboratories. The ASCLD/LAB® Manual provides the following description of their accreditation program:

"The Crime Laboratory Accreditation Program of the American Society of Crime Laboratory Directors/Laboratory Accreditation Board (ASCLD/LAB®) is a voluntary program in which any crime laboratory may participate to demonstrate that its management, operations, personnel, procedures, equipment, physical plant, security, and health and safety procedures meet established standards. The program is managed by the Board of Directors, elected by the

Delegate Assembly, to which it is responsible. The Delegate Assembly is composed of the directors of all accredited laboratories and laboratory systems. "

"Accreditation is part of a laboratory's quality assurance program which should also include proficiency testing, continuing education, and other programs to help the laboratory give better overall service to the criminal justice system. Accreditation is granted for a period of five years provided that a laboratory continues to meet ASCLD/LAB® standards, including completion of the Annual Accreditation Review Report and participation in proficiency testing programs as prescribed. To maintain accreditation, a laboratory must submit a new Application for accreditation every fifth year, and undergo another on-site inspection."

"ASCLD/LAB® has adopted four objectives which define the purposes and nature of the program. They are:

- ✓ To improve the quality of laboratory services provided to the criminal justice system.
- To develop and maintain criteria which can be used by a laboratory to assess its level of performance and to strengthen its operation.
- ✓ To provide an independent, impartial, and objective system by which laboratories can benefit from a total operational review.
- To offer to the general public and to users of laboratory services a means of identifying those laboratories which have demonstrated that they meet established standards.

The Statewide Forensic Science Task Force should be charged with establishing a list of all crime/forensic laboratories or police agencies performing forensic analysis that by definition must be accredited. Those identified, who are not accredited by 2006, should be closed.

If accreditation by ASCLD/LAB® is not mandated, the Statewide Forensic Science Task Force must develop a mandatory statewide Quality Control/Quality Assurance Program for all crime/forensic laboratories or police agencies performing forensic analysis. This Program must have following components:

- Quality Assurance Manager
- Annual review of the Quality Control/Quality Assurance Program
- Written Quality Assurance Manual
- Written standard operating procedures/protocols for each discipline performed in laboratory
- · Written procedures and requirements for case documentation
- Case reports 100% administratively reviewed before being released outside of the laboratory
- Percentage of case reports in each discipline peer reviewed for technical correctness before being released outside of the laboratory
- Written procedures for the handling of evidence (i.e., sealing, labeling, chain-of-custody, sample integrity, preservation, and discrepancies)
- Written procedures for the control of materials and supplies
- Written procedures for ensuring the quality and reliability of reagents and standards (i.e. labeling, storage, handling, logging, testing)
- Written procedures for the scientific validation and verification of new technical methods prior to being used in casework

- · Quality control testing of instruments/equipment
- Written procedures for addressing analytical discrepancies
- Written procedures for corrective action
- Written procedures for the confidentiality and release of information
- Laboratory security procedures
- Written procedures for a Health and Safety Program
- · Quality audits
- Annual procedures/manual reviews
- Annual or semi-annual proficiency testing of all examiners
- Participation in an external proficiency test program (proficiency tests must come from approved providers only)
- Educational requirements defined for each analyst in each discipline
- Written training programs for each discipline, including competency tests and mock court
- · Employee development program
- Annual monitoring of testimony by examiners
- Library containing current books, journals, CD-ROMS, etc. in each discipline
- Adequate space and facilities
- Up-to-date equipment

3. The Office of the Chief Medical Examiner (OCME) shall be accredited by the National Association of Medical Examiners (NAME) and American Board of Forensic Toxicology (ABFT).

The Office of the Chief Medical Examiner (OCME) is presently accredited by the National Association of Medical Examiners (NAME) and American Board of Forensic Toxicology (ABFT). In order for the OCME to maintain accreditation by the National Association of Medical Examiners (NAME) additional funding, personnel and a new facility is needed.

The Statewide Forensic Science Task Force, or its designee, should investigate whether American Society of Crime Laboratory Directors/Laboratory Accreditation Board (ASCLD/LAB®) accreditation would benefit the State Toxicology Laboratory as ASCLD/LAB® becomes ISO 17025 (International Organization for Standardization - General requirements for the competence of testing and calibration laboratories) compliant.

4. In order for non-accredited crime/forensic laboratories to be come accredited the following assistance must be provided:

- Assistance and guidance from the accredited laboratories in the development of standard operating procedures, quality control/quality assurance program, health and safety program, security issues, and quality auditing
- · Local, state and/or federal funding to provide for:

- Quality Assurance Manager or personnel to perform quality assurance duties
- Quality Assurance Program development
- Personnel needs
- Upgraded instrumentation/equipment
- New or upgraded facilities
- Accreditation costs
- · Support from parent agency

As seen from the results of the Quality Assurance Survey non-accredited crime/forensic laboratories have had difficulty working toward accreditation due to lack of funding, agency support, quality assurance programs, personnel, equipment, and adequate facilities. The accredited laboratories have the expertise in achieving accreditation and need to share not only their procedures and manuals, but also their experiences with the process. Common procedures and policies should be developed statewide.

With respect to smaller crime/forensic laboratories it would be more cost-effective to share Quality Assurance Managers. For example the Hagerstown Police Department Western Maryland Regional Crime Lab and the Montgomery County Police Department Crime Laboratory could share a Quality Assurance Manager.

4. A statewide quality assurance committee should be established to:

- · Oversee the recommendations of the Statewide Forensic Science Task Force
- · Provide guidance and assistance to crime/forensic laboratories
- · Develop a statewide Quality Assurance Program Model
- · Oversee applications of new standards
- · Develop a statewide BLIND Proficiency Testing Program

The work of the Statewide Forensic Science Task Force should not end with this report. To ensure quality forensic work in all crime/forensic laboratories it is essential there be a method by which monitoring can occur. Forensic science is constantly expanding its capabilities with new or improved technology and standards and procedures are ever evolving. The Scientific Working Groups (SWG) and the American Society of Testing and Materials (ASTM) are developing new or updated forensic standards. The American Society of Crime Laboratory Directors/Laboratory Accreditation Board (ASCLD/LAB®) is working toward international compliance with ISO 17025 - General requirements for the competence of testing and calibration laboratories. Maryland laboratories must keep current in all aspects of forensic science and it standardization.

6. All public crime/forensic laboratories shall adhere to guidelines established by the Scientific Working Groups.

Scientific Working Groups (SWGs) have been established for various forensic disciplines to provide guidelines for technical procedures, quality assurance, evidence handling, proficiency testing, training and education and report writing. The Federal Bureau of Investigation has sponsored the majority of the Scientific Working Groups (SWGs). Members of the SWGs consist of forensic experts from local, state and federal laboratories in the United States, as well as international representatives.

Adherence would apply to all present and future Scientific Working Group guidelines.

In April 2001 twenty-five drug chemists from several laboratories in Maryland met and agreed that all laboratories in Maryland should adhere to SWGDRUG guidelines.

Present Scientific Working Groups

SWGDAM Scientific Working Group DNA Analysis Methods

(DAB guidelines in effect and any future SWGDAM guidelines approved by the Director

of the FBI)

SWGDE Scientific Working Group for Digital Evidence

SWGDOC Scientific Working Group for Documents

SWGIT Scientific Working Group for Imaging Technologies

SWGDRUG Scientific Working Group for the Analysis of Seized Drugs

SWGFAST Scientific Working Group Friction Ridge Analysis or fingerprinting.

SWGFAX Scientific Working Group for Forensic Archiving of X-ray Spectra

SWGGUN Scientific Working Group on Firearms and Toolmarks

SWGMAT Scientific Working Group for Trace Evidence

7. All forensic personnel shall be encouraged to attain and maintain professional certification.

Professional certification is a voluntary process for the recognition of a forensic expert who has met the professional qualifications required to practice in one or more disciplines of forensics. As seen by the Quality Assurance Survey only twelve scientists have been certified by the American Board of Criminalistics, nine by the International Association for Identification, and two each by the Association of Firearm and Toolmark Examiners and the American Board of Forensic Toxicology. Forensic personnel must be provided with the appropriate funding and support to attain and maintain professional certification. Statewide study groups should be formed to provide assistance in exam preparation.

Professional Certification Organizations

American Board of Criminalistics (ABC)

- General Knowledge
- Biology
- Drugs
- Fire Debris
- Trace Evidence

International Association for Identification (IAI)

- Bloodstain Patterns
- Latent Prints
- Crime Scene
- · Footwear/Tire Tracks
- Forensic Art
- Photography/Imaging

Association of Firearm and Toolmark Examiners (AFTE)

- Firearms
- Distance Determination
- · Toolmarks

American Board of Forensic Toxicology (ABFT)

- Toxicology
- 8. The certification program for drug chemists and analysts by the Department of Health and Mental Hygiene shall be reviewed for content and present need.

The only forensic expertise that requires certification under Maryland law is controlled dangerous substances. COMAR 10.10.09 establishes the current state requirements for personnel certification and laboratory procedures approval for controlled dangerous substances analysis in law enforcement laboratories. The Department of Health and Mental Hygiene (DHMH) oversees this certification. Under COMAR education requirements for a certified chemist and certified analyst are defined. Both are to have completed a basic training program approved by DHMH prior to certification. Chemists and analysts are certified only when performing those drug-identification procedures approved by the DHMH and contained in the "Forensic Chemists and Analysts Training and Procedure Manual" (1992).

The requirement of adhering to a procedure manual that is nine years old goes against quality assurance principles. Those Maryland laboratories, which have been accredited by the American Society of Crime Laboratory Directors/Laboratory Accreditation Board (American Society of Crime Laboratory Directors/Laboratory Accreditation Board (ASCLD/LAB®)), have developed procedures and training programs, which far exceed that of DHMH. These laboratories' procedures have received the approval of DHMH. However, there is no consistency within the state with regard procedures and training programs for drug analysis. With adherence to SWGDRUG guidelines consistency can be established and there would be no need for out-dated manual.

DHMH has been given the responsibility under the law to ensure the quality control of laboratories performing drug analysis. They have fallen short of this responsibility. They have allowed the laboratories to police themselves. It is essential that COMAR 10.10.09 be reviewed and updated. A determination should be made as to the need for DHMH to oversee this program or whether the certification program is even necessary if accreditation by American Society of Crime Laboratory Directors/Laboratory Accreditation Board (ASCLD/LAB®) becomes mandatory, as does adherence to SWGDRUG.

9. All forensic personnel shall receive appropriate training to remain current in their field of expertise.

The quality of the forensic laboratory work product is jeopardized when analysts do not remain current in their disciplines. Laboratories provide insufficient funds in their operating budgets to send individuals to needed training and professional meetings. Local, state and federal funding must be acquired to ensure each analyst receives adequate training. Each analyst should be provided with at least one external training annually.

Each crime/forensic laboratory must have a written and documented training program for each discipline. The Scientific Working Groups (SWGs) have developed guidelines for training, which must be followed. In addition each crime/forensic laboratory should have a documented a program which defines the laboratory's policy on employee development. It should address the various opportunities available to employees, such as:

- Professional organizations and their meetings
- Staff development seminars provided by governmental agencies
- Technical training courses (e.g., FBI's FSRTC courses, DEA seminars, and courses provided by instrument companies)
- In-house technical meetings, courses, and seminars
- Laboratory sponsored seminars and conferences
- College level courses.
 - (Quoted from the ASCLD/LAB® Manual 1.3.3 Training and Development)

Although the FBI provides free forensic training, it is limited and the demand is great with laboratories throughout the United States vying for slots. Maryland should develop a training program similar to the Commonwealth of Virginia, which provides updated information in specific disciplines through various one to three day seminars. A statewide training committee should be established to assist in the development of this training program.

University programs should be developed which will provide trained graduates. Needs exist specifically for trained latent print, firearms/toolmarks, trace, and questioned document examiners. Students need to intern in laboratories, but caseloads, shortage of staff, and chain-of-custody problems make this difficult.

10. All crime/forensic laboratories shall ensure that their instruments/ equipment is adequate for procedures utilized and in proper working condition.

In order to ensure laboratory quality all laboratory instruments/equipment must be current and in proper working order. Routine quality control checks, which includes calibration, and the running of standards and controls, must be performed and documented on instruments/equipment. Routine maintenance must occur and be documented. Only authorized personnel shall operate specified equipment.

The Quality Assurance Survey showed that some laboratories do not have funding for annual maintenance contracts on instruments/equipment. Funding must be available for maintenance contracts to avoid unnecessary downtime for the instruments/equipment and increased backlogs. Maintenance contracts provide routine maintenance checks, as well as efficient repair.

11. Crime/forensic laboratories shall have sufficient personnel with the required education, training and experience needed to perform within the applicable disciplines. A uniform salary base shall be developed for the Maryland region, which will enhance hiring and retention of qualified staff.

Crime/forensic laboratories must be adequately staffed to provide proper service to the criminal justice system. Insufficient personnel lead to backlogs and overburdened staff. The quality of the forensic analyses can suffer. Consolidation of some services in the state could assist in adequate staffing.

To implement and maintain Quality Assurance and Health and Safety programs, which include documentation and periodic auditing, sufficient quality assurance managers and support staff must be granted.

All personnel must have their academic, training and work experience, as well as professional association credentials verified. Before beginning casework, analysts must have received proper training for each discipline. This training adheres to a written program, which includes moot court. All training must be documented. If a new employee has been hired

with experience, he/she must provide documentation of his/her training and court experience with previous employer. Training requirements must be in compliance with guidelines provided by the Scientific Working Groups (SWGs) and the DNA Advisory Board (DAB), if available. Release to perform casework will not occur until competency tests have been successfully completed.

All analysts must successfully complete an annual proficiency testing, except DNA analysts, who must complete a proficiency test every 183 days. All analysts' testimony must be monitored annually. If court testimony was not given during the year, documentation must be provided. Each analyst must be provided annual training through seminars, courses, professional meetings, or other applicable means.

The hiring and retention of qualified staff is of great concern. Constant turnover of staff is affects quality, case productivity and morale. Due the "forensic-rich" community in the Baltimore-Washington corridor qualified analysts can "shop" for better paying positions. One agency will invest considerable time (4 months to 2 years) and money (up to \$150,000) into the training of forensic analyst, only to loose the analyst to another agency for a higher salary. Due to governmental hiring practices and lengthy background checks, it can take up to a year in some cases to replace staff. A uniform salary base must be instituted throughout Maryland. The salaries must be competitive enough to attract qualified individuals and also retain trained personnel.

12. All crime/forensic laboratories shall have adequate facilities designed to maximize laboratory functions and activities, safeguard the physical evidence, protect the confidential nature of the laboratory operation, and provide a safe and healthy working environment.

The majority of the crime/forensic laboratories in Maryland have insufficient space and/or updated facilities. The American Society of Crime Laboratory Directors/Laboratory Accreditation Board (ASCLD/LAB®) states:

"Although there are many acceptable means to determine how much space is recommended to provide an adequate and safe work environment in a forensic laboratory, one valuable reference is 'Forensic Laboratories: Handbook for Facility Planning, Design, Construction, and Moving.' Publication NCJ168106 prepared by the U.S. Department of Justice, Office of Justice Program, National Institute of Justice. Laboratories in which usable space falls below adequate levels may experience health and safety problems, compromised efficiency, adversely effected morale and productivity, and increased risk of mishandled or contaminated evidence. In designing and planning additional space or a new facility, future space requirements should be projected. Average annual staff changes in each category should be factored in for the duration of the useful life the facility is projected to serve. The design should maximize laboratory functions and activities, safeguard the physical evidence, protect the confidential nature of the laboratory operation, and provide a safe and healthy working environment. Design considerations should permit the efficient flow of evidence from the time of its acceptance until its proper disposal. The functional areas of the

laboratory should be relatively located in order to facilitate the use of common equipment and instruments. Adequate storage space for all supplies should be present and utilities should be sufficient for personnel to carry out assigned tasks in a safe manner."

In addition each employee must be provided with adequate workspace to complete analyses/examinations and write reports. To ensure evidence and test integrity environmental conditions must be monitored and proper security must be enforced. Laboratory access must be controlled and limited to individuals who are assigned to routinely work in the area or who are designated to have access to the area.

13. Statewide procedures and policies shall be developed for the collection, handling, control, preservation, and destruction of forensic evidence. These procedures and policies shall include, but not limited to:

- · Written procedures for the collection, handling, preservation and destruction of evidence
- · Written evidence submission guidelines
- · Written and documented training program for all crime scene personnel
- · Competency testing of all crime scene personnel prior to crime scene processing
- · Annual proficiency testing of all crime scene personnel
- · Annual testimony monitoring of all crime scene personnel
- · American Society of Crime Laboratory Directors/Laboratory Accreditation Board (ASCLD/LAB®) accreditation of crime scene units where applicable
- Requirement for all sexual assault evidence to be collected by trained forensic nurses (S.A.N.E, S.A.R.T., or S.A.F.E.)
- · Evidence tracking

The integrity of evidence is uppermost for the investigation and prosecution of a crime. All cases rest on the proper collection, handling, control, and preservation of evidence. In small agencies throughout Maryland, sworn officers or correction officers, who may have received little to no training, collect forensic evidence. They do not know current procedures nor utilize new technology. Their work is not monitored for quality assurance.

Crime/forensic laboratories and agencies submitting evidence for analysis must follow consistent procedures for the handling of evidence (i.e., sealing, labeling, chain-of-custody, sample integrity, preservation, and discrepancies). In order to ensure consistency and integrity statewide submission guidelines must be developed and implemented. Submission guidelines can be developed using those developed by the Federal Bureau of Investigation, Maryland State Police and Baltimore County Police Department as models.

Consistent quality training to crime scene personnel in the entire state must be provided. This training could be developed and provided by the Maryland Police and Corrections Training Commissions with input from accredited laboratories. Updated training should be provided annually. Training should include the collection of computer hardware and other electronic, audio and video evidence, which is becoming common at crime scenes.

The Maryland Interagency Crime Scene Evidence Committee (MICSEC) was recently formed to address training issues. They have proposed a course outline for the Training Module for Crime Scene Technicians. This committee should be given the task to follow through with the recommendations from the Statewide Forensic Science Task Force with regard to evidence collection.

To ensure quality crime scene processing competency tests must be successfully completed prior to release to the field. Successful completion of annual proficiency tests is a requirement for ASCLD/LAB® crime scene accreditation. All crime scene personnel should undergo this annual proficiency testing. Proficiency tests would need to be developed as no providers exist at this time. Testimony should be monitored annually or documented that no testimony was given in that year.

Those laboratories or agencies, which meet the American Society of Crime Laboratory Directors/Laboratory Accreditation Board (ASCLD/LAB®) definition of a crime/forensic laboratory and perform crime scene processing, shall have their crime scene unit accredited. ASCLD/LAB® states, "In order to be accredited in crime scene a laboratory must be performing casework in at least one other ASCLD/LAB® accredited discipline for which accreditation will be required." These disciplines are biology, controlled substances (drugs), firearms/toolmarks, footwear/tire tracks, latent prints, questioned documents, serology, toxicology, and trace evidence.

To ensure the quality of collection of sexual assault evidence all sexual assault evidence shall be collected by forensic nurses who are trained through or participate in a forensic nursing program such as:

- S.A.N.E. (Sexual Assault Nurse Examiner)
- S.A.R.T. (Sexual Assault Response Team)
- S.A.F.E. (Sexual Assault Forensic Examiner).

To ensure the integrity and safekeeping of evidence tracking systems must be in place. "Electronic tracking of evidence is an acceptable alternative to a written record as long as the computerized data is sufficiently secure, detailed and accessible for review and can be converted to a hard copy when necessary. Unique identifiers, having individual security, such as barcodes, are acceptable in lieu of actual signatures." ASCLD/LAB® Manual 1.4.1 Evidence Control.

14. If any crime/forensic laboratory outsources or subcontracts casework for any reason, the outsourced or subcontracted laboratory must comply with the standards established for the test requested.

Only accredited or certified laboratories should be use for outsourced or subcontracted work. These laboratories must provide documentation to prove accreditation/certification in good standing. Guidelines established by the Scientific Working Groups (SWGs) should be these laboratories.

15. A Code of Ethics should be established to ensure that the highest level of integrity is maintained throughout all crime/forensic laboratories.

Although there have been only a few occurrences of unethical performances of forensic personnel in this country, it takes only one to destroy the reputation of a laboratory. Forensic personnel are expected to meet the highest standards. Quality assurance does not just occur with the adherence to a quality assurance program but also requires professional ethical conduct on the part of all forensic personnel. Crime/forensic laboratories must avoid any activity, interest or association that interferes or appears to interfere with their independent exercise of professional judgement. The confidentiality of work and information must be protected.

This Code of Ethics shall apply to all forensic personnel, including crime scene personnel.

ATTACHMENTS

ATTACHMENT 1 (Executive Order)



Executive Department

EXECUTIVE ORDER 01.01.2000.04

Statewide Forensic Sciences Task Force

WHEREAS.

In recognition of the need to enhance the quality of forensic services within the State in order to provide law enforcement with the best forensic services technology available to detect and prosecute criminals;

WHEREAS.

There is a need for coordinated efforts to enhance laboratory accreditation, training and equipment among the crime laboratories in the State; and

WHEREAS.

Future federal funding to crime laboratories may require the establishment of a statewide "Master Plan" for forensic sciences.

NOW, THEREFORE,

I, PARRIS N. GLENDENING, GOVERNOR OF THE STATE OF MARYLAND, BY VIRTUE OF THE AUTHORITY VESTED IN ME BY THE CONSTITUTION AND THE LAWS OF MARYLAND, HEREBY PROCLAIM THE FOLLOWING EXECUTIVE ORDER, EFFECTIVE IMMEDIATELY:

- A. Establishment. There is a Forensic Sciences Task Force.
- B. Membership and Procedures. The Task Force shall consist of up to 15 members, including:
- (1) The Secretary of the Department of State Police, or the Secretary's designee, who shall serve as Chair of the Task Force;
 - (2) The Attorney General or the Attorney General's designee;
- (3) A member of the Senate designated by the President of the Senate;
- (4) A member of the House of Delegates designated by the Speaker of the House.
- (5) A representative designated by each of the following crime laboratories:
- (a) The Department of State Police Crime Laboratory;

- (b) The Crime Laboratory of the State Medical Examiner's Office;
 - (c) The Baltimore City Crime Laboratory;
 - (d) The Anne Arundel County Crime Laboratory;
 - (e) The Baltimore County Crime Laboratory;
 - (f) The Montgomery County Crime Laboratory;
 - (g) The Prince George's County Crime Laboratory;
 - (h) The City of Hagerstown Crime Laboratory; and
 - (i) The Ocean City Crime Laboratory.
- (6) Up to two public members with relevant interest, knowledge or experience appointed by the Governor.
- C. The Task Force shall meet at times determined by the members of the Task Force.
- D. Duties of the Task Force. The Task Force will make recommendations to the Secretary of the State Police on:
- (1) Establishment of cooperative working procedures among all crime laboratories within the State;
- (2) Development of a statewide master plan to better coordinate statewide services:
 - (3) Development of staff training guidelines;
- (4) New equipment and technology available to crime laboratories;
 - (5) The quality of existing forensic services;
- (6) Methods to offer technical advice to crime labs seeking accreditation; and
 - (7) Potential sources of federal funding.

- E. The members of the Task Force may not receive any compensation for their services, but may receive reimbursement for reasonable expenses incurred in the performance of their duties in accordance with the State Standard Travel Regulations and as provided in the State budget.
- F. The Department of State Police shall provide lead staff support to the Task Force.
- G. Report. The Task Force shall submit a final report to the Governor's office and the General Assembly on or before September 30, 2001.



GIVEN Under My Hand and the Great Seal of the State of Maryland, in the City of Annapolis, this 27th Day of January, 2000.

Parris N. Glendening

Secretary of State

ATTEST:

ATTACHMENT 2 (Paul Coverdell National Forensic Sciences Improvement Act of 2000)

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Bill 4 of 4

Final version (Enrolled Bill) as passed by both Houses. There are 3 other versions of this bill.

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Paul Coverdell National Forensic Sciences Improvement Act of 2000 (Enrolled Bill)

--S.3045--

S.3045

One Hundred Sixth Congress

of the

United States of America

AT THE SECOND SESSION

Begun and held at the City of Washington on Monday,

the twenty-fourth day of January, two thousand

An Act

To improve the quality, timeliness, and credibility of forensic science services for criminal justice purposes, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the 'Paul Coverdell National Forensic Sciences Improvement Act of 2000'.

- SEC. 2. IMPROVING THE QUALITY, TIMELINESS, AND CREDIBILITY OF FORENSIC SCIENCE SERVICES FOR CRIMINAL JUSTICE PURPOSES.
 - (a) DESCRIPTION OF DRUG CONTROL AND SYSTEM IMPROVEMENT GRANT PROGRAM- Section 501(b) of title I of the Omnibus Crime Control and Safe Streets Act of 1968 (42 U.S.C. 375(b)) is amended--
 - (1) in paragraph (25), by striking 'and' at the end;
 - (2) in paragraph (26), by striking the period at the end and inserting '; and'; and
 - (3) by adding at the end the following:

- `(27) improving the quality, timeliness, and credibility of forensic science services for criminal justice purposes.'.
- (b) STATE APPLICATIONS- Section 503(a) of title I of the Omnibus Crime Control and Safe Streets Act of 1968 (42 U.S.C. 3753(a)) is amended by adding at the end the following:
- '(13) If any part of the amount received from a grant under this part is to be used to improve the quality, timeliness, and credibility of forensic science services for criminal justice purposes, a certification that, as of the date of enactment of this paragraph, the State, or unit of local government within the State, has an established--
 - '(A) forensic science laboratory or forensic science laboratory system, that-
 - '(i) employs 1 or more full-time scientists--
 - '(I) whose principal duties are the examination of physical evidence for law enforcement agencies in criminal matters; and
 - '(II) who provide testimony with respect to such physical evidence to the criminal justice system;
 - '(ii) employs generally accepted practices and procedures, as established by appropriate accrediting organizations; and
 - '(iii) is accredited by the Laboratory Accreditation Board of the American Society of Crime Laboratory Directors or the National Association of Medical Examiners, or will use a portion of the grant amount to prepare and apply for such accreditation by not later than 2 years after the date on which a grant is initially awarded under this paragraph; or
 - `(B) medical examiner's office (as defined by the National Association of Medical Examiners) that--
 - '(i) employs generally accepted practices and procedures, as established by appropriate accrediting organizations; and
 - '(ii) is accredited by the Laboratory Accreditation Board of the American Society of Crime Laboratory Directors or the National Association of Medical Examiners, or will use a portion of the grant amount to prepare and apply for such accreditation by not later than 2 years after the date on which a grant is initially awarded under this paragraph.'
- (c) PAUL COVERDELL FORENSIC SCIENCES IMPROVEMENT GRANTS-
 - (1) IN GENERAL- Title I of the Omnibus Crime Control and Safe Streets Act of 1968 (42 U.S.C. 3711 et seq.) is amended by adding at the end the following:

`PART BB--PAUL COVERDELL FORENSIC SCIENCES IMPROVEMENT GRANTS

SEC. 2801. GRANT AUTHORIZATION.

'The Attorney General shall award grants to States in accordance with this part.

SEC. 2802. APPLICATIONS.

'To request a grant under this part, a State shall submit to the Attorney General--

- `(1) a certification that the State has developed a consolidated State plan for forensic science laboratories operated by the State or by other units of local government within the State under a program described in section 2804(a), and a specific description of the manner in which the grant will be used to carry out that plan;
- '(2) a certification that any forensic science laboratory system, medical examiner's office, or coroner's office in the State, including any laboratory operated by a unit of local government within the State, that will receive any portion of the grant amount uses generally accepted laboratory practices and procedures, established by accrediting organizations; and
- `(3) a specific description of any new facility to be constructed as part of the program described in paragraph (1), and the estimated costs of that facility, and a certification that the amount of the grant used for the costs of the facility will not exceed the limitations set forth in section 2804(c).

SEC. 2803. ALLOCATION.

'(a) IN GENERAL-

- '(1) POPULATION ALLOCATION- Seventy-five percent of the amount made available to carry out this part in each fiscal year shall be allocated to each State that meets the requirements of section 2802 so that each State shall receive an amount that bears the same ratio to the 75 percent of the total amount made available to carry out this part for that fiscal year as the population of the State bears to the population of all States.
- `(2) DISCRETIONARY ALLOCATION- Twenty-five percent of the amount made available to carry out this part in each fiscal year shall be allocated pursuant to the Attorney General's discretion to States with above average rates of part 1 violent crimes based on the average annual number of part 1 violent crimes reported by such State to the Federal Bureau of Investigation for the 3 most recent calendar years for which such data is available.
- '(3) MINIMUM REQUIREMENT- Each State shall receive not less than 0.6 percent of the amount made available to carry out this part in each fiscal year.
- '(4) PROPORTIONAL REDUCTION- If the amounts available to carry out this part in each fiscal year are insufficient to pay in full the total payment that any State is otherwise eligible to receive under paragraph (3), then the Attorney General shall reduce payments under paragraph (1) for such payment period to the extent of such insufficiency. Reductions under the preceding sentence shall be allocated among the States (other than States whose payment is determined under paragraph (3)) in the same proportions as amounts would be allocated under paragraph (1) without regard to paragraph (3).
- '(b) STATE DEFINED- In this section, the term 'State' means each of the several States, the District of Columbia, the Commonwealth of Puerto Rico, the Virgin Islands, American Samoa, Guam, and the Commonwealth of the Northern Mariana Islands, except that--
 - '(1) for purposes of the allocation under this section, American Samoa and the Commonwealth of the Northern Mariana Islands shall be considered as 1 State; and
 - '(2) for purposes of paragraph (1), 67 percent of the amount allocated shall be allocated to American Samoa, and 33 percent shall be allocated to the Commonwealth of the Northern Mariana Islands.

SEC. 2804. USE OF GRANTS.

- '(a) IN GENERAL- A State that receives a grant under this part shall use the grant to carry out all or a substantial part of a program intended to improve the quality and timeliness of forensic science or medical examiner services in the State, including such services provided by the laboratories operated by the State and those operated by units of local government within the State.
- '(b) PERMITTED CATEGORIES OF FUNDING- Subject to subsections (c) and (d), a grant awarded under this part--
 - '(1) may only be used for program expenses relating to facilities, personnel, computerization, equipment, supplies, accreditation and certification, education, and training; and
 - '(2) may not be used for any general law enforcement or nonforensic investigatory function.

'(c) FACILITIES COSTS-

- '(1) STATES RECEIVING MINIMUM GRANT AMOUNT- With respect to a State that receives a grant under this part in an amount that does not exceed 0.6 percent of the total amount made available to carry out this part for a fiscal year, not more than 80 percent of the total amount of the grant may be used for the costs of any new facility constructed as part of a program described in subsection (a).
- `(2) OTHER STATES- With respect to a State that receives a grant under this part in an amount that exceeds 0.6 percent of the total amount made available to carry out this part for a fiscal year--
 - '(A) not more than 80 percent of the amount of the grant up to that 0.6 percent may be used for the costs of any new facility constructed as part of a program described in subsection (a); and
 - '(B) not more than 40 percent of the amount of the grant in excess of that 0.6 percent may be used for the costs of any new facility constructed as part of a program described in subsection (a).
- '(d) ADMINISTRATIVE COSTS- Not more than 10 percent of the total amount of a grant awarded under this part may be used for administrative expenses.

SEC. 2805. ADMINISTRATIVE PROVISIONS.

'(a) REGULATIONS- The Attorney General may promulgate such guidelines, regulations, and procedures as may be necessary to carry out this part, including guidelines, regulations, and procedures relating to the submission and review of applications for grants under section 2802.

'(b) EXPENDITURE RECORDS-

- '(1) RECORDS- Each State, or unit of local government within the State, that receives a grant under this part shall maintain such records as the Attorney General may require to facilitate an effective audit relating to the receipt of the grant, or the use of the grant amount.
- '(2) ACCESS- The Attorney General and the Comptroller General of the United States, or a designee thereof, shall have access, for the purpose of audit and examination, to any book, document, or record of a State, or unit of local government within the State, that receives a grant under this part, if, in the determination of the Attorney General, Comptroller General, or designee thereof, the book, document, or record is related to the receipt of the grant, or the use of the grant amount.

SEC. 2806. REPORTS.

- '(a) REPORTS TO ATTORNEY GENERAL- For each fiscal year for which a grant is awarded under this part, each State that receives such a grant shall submit to the Attorney General a report, at such time and in such manner as the Attorney General may reasonably require, which report shall include--
 - `(1) a summary and assessment of the program carried out with the grant;
 - `(2) the average number of days between submission of a sample to a forensic science laboratory or forensic science laboratory system in that State operated by the State or by a unit of local government and the delivery of test results to the requesting office or agency; and
 - '(3) such other information as the Attorney General may require.
- '(b) REPORTS TO CONGRESS- Not later than 90 days after the last day of each fiscal year for which 1 or more grants are awarded under this part, the Attorney General shall submit to the Speaker of the House of Representatives and the President pro tempore of the Senate, a report, which shall include--
 - `(1) the aggregate amount of grants awarded under this part for that fiscal year; and
 - `(2) a summary of the information provided under subsection (a).'.
 - (2) AUTHORIZATION OF APPROPRIATIONS-
 - (A) IN GENERAL- Section 1001(a) of title I of the Omnibus Crime Control and Safe Streets Act of 1968 (42 U.S.C. 3753(a)) is amended by adding at the end the following:
 - '(24) There are authorized to be appropriated to carry out part BB, to remain available until expended--
 - '(A) \$35,000,000 for fiscal year 2001;
 - (B) \$85,400,000 for fiscal year 2002;
 - '(C) \$134,733,000 for fiscal year 2003;
 - (D) \$128,067,000 for fiscal year 2004;
 - '(E) \$56,733,000 for fiscal year 2005; and
 - '(F) \$42,067,000 for fiscal year 2006.'.
 - (B) BACKLOG ELIMINATION- There is authorized to be appropriated \$30,000,000 for fiscal year 2001 for the elimination of DNA convicted offender database sample backlogs and for other related purposes, as provided in the Departments of Commerce, Justice, and State, the Judiciary, and Related Agencies Appropriations Act, 2001.
 - (3) TABLE OF CONTENTS- Title I of the Omnibus Crime Control and Safe Streets Act of 1968 (42 U.S.C. 3711 et seq.) is amended by striking the table of contents.
 - (4) REPEAL OF 20 PERCENT FLOOR FOR CITA CRIME LAB GRANTS- Section

- 102(e)(2) of the Crime Identification Technology Act of 1998 (42 U.S.C. 14601(e)(2)) is amended--
 - (A) in subparagraph (B), by adding 'and' at the end; and
 - (B) by striking subparagraph (C) and redesignating subparagraph (D) as subparagraph (C).

SEC. 3. CLARIFICATION REGARDING CERTAIN CLAIMS.

- (a) IN GENERAL- Section 983(a)(2)(C)(ii) of title 18, United States Code, is amended by striking '(and provide customary documentary evidence of such interest if available) and state that the claim is not frivolous'.
- (b) EFFECTIVE DATE- The amendment made by this section shall take effect as if included in the amendment made by section 2(a) of Public Law 106-185.
- SEC. 4. SENSE OF CONGRESS REGARDING THE OBLIGATION OF GRANTEE STATES TO ENSURE ACCESS TO POST-CONVICTION DNA TESTING AND COMPETENT COUNSEL IN CAPITAL CASES.
 - (a) FINDINGS- Congress finds that--
 - (1) over the past decade, deoxyribonucleic acid testing (referred to in this section as 'DNA testing') has emerged as the most reliable forensic technique for identifying criminals when biological material is left at a crime scene;
 - (2) because of its scientific precision, DNA testing can, in some cases, conclusively establish the guilt or innocence of a criminal defendant;
 - (3) in other cases, DNA testing may not conclusively establish guilt or innocence, but may have significant probative value to a finder of fact;
 - (4) DNA testing was not widely available in cases tried prior to 1994;
 - (5) new forensic DNA testing procedures have made it possible to get results from minute samples that could not previously be tested, and to obtain more informative and accurate results than earlier forms of forensic DNA testing could produce, resulting in some cases of convicted inmates being exonerated by new DNA tests after earlier tests had failed to produce definitive results;
 - (6) DNA testing can and has resulted in the post-conviction exoneration of more than 75 innocent men and women, including some under sentence of death;
 - (7) in more than a dozen cases, post-conviction DNA testing that has exonerated an innocent person has also enhanced public safety by providing evidence that led to the apprehension of the actual perpetrator;
 - (8) experience has shown that it is not unduly burdensome to make DNA testing available to inmates in appropriate cases;
 - (9) under current Federal and State law, it is difficult to obtain post-conviction DNA testing because of time limits on introducing newly discovered evidence;
 - (10) the National Commission on the Future of DNA Evidence, a Federal panel established by the Department of Justice and comprised of law enforcement, judicial, and scientific experts, has urged that post-conviction DNA testing be permitted in the relatively small

number of cases in which it is appropriate, notwithstanding procedural rules that could be invoked to preclude such testing, and notwithstanding the inability of an inmate to pay for the testing;

- (11) only a few States have adopted post-conviction DNA testing procedures;
- (12) States have received millions of dollars in DNA-related grants, and more funding is needed to improve State forensic facilities and to reduce the nationwide backlog of DNA samples from convicted offenders and crime scenes that need to be tested or retested using upgraded methods;
- (13) States that accept such financial assistance should not deny the promise of truth and justice for both sides of our adversarial system that DNA testing offers;
- (14) post-conviction DNA testing and other post-conviction investigative techniques have shown that innocent people have been sentenced to death in this country;
- (15) a constitutional error in capital cases is incompetent defense lawyers who fail to present important evidence that the defendant may have been innocent or does not deserve to be sentenced to death; and
- (16) providing quality representation to defendants facing loss of liberty or life is essential to fundamental due process and the speedy final resolution of judicial proceedings.
- (b) SENSE OF CONGRESS- It is the sense of Congress that--
 - (1) Congress should condition forensic science-related grants to a State or State forensic facility on the State's agreement to ensure post-conviction DNA testing in appropriate cases; and
 - (2) Congress should work with the States to improve the quality of legal representation in capital cases through the establishment of standards that will assure the timely appointment of competent counsel with adequate resources to represent defendants in capital cases at each stage of the proceedings.

Speaker of the House of Representatives.

Vice President of the United States and

President of the Senate.

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ATTACHMENT 3 (Scope of Consultant Work)

SCOPE OF SERVICES

1. INTENT

The intent of this contract is to establish a firm price agreement with one qualified forensic consulting firm to conduct a study of Maryland's Criminal Justice System as it relates to crime laboratory services

2. BACKGROUND

The Maryland State Police has been directed by Governor Parris N. Glendening by executive order 01.01.2000.04 to establish a State wide Forensic Sciences Task Force. The Governor recognized the need to enhance the quality of forensic services within the state in order to provide law enforcement with the best forensic services technology available to detect and prosecute criminals.

3. TASKS TO BE PERFORMED

- a) Assist the Statewide Forensic Sciences Task Force in developing a master plan of forensic science services for Maryland. This plan should insure that Maryland's forensic services meet the stringent tests of reliability, timeliness, and credibility in all jurisdictions.
 - * To conduct an assessment of the state's current forensic laboratory needs and capabilities. Specifically the following:

1. Assessment of Existing Physical Plants

- Physical environment of laboratories
- Current allocations and utilization of space
- Mechanical and electrical conditions of building
- Computer software and hardware technology including LIMS
- Laboratory Safety
- Factors causing delays in examinations

2. Work Volume Conditions

- Examination of work flow
- Factors causing delays in examinations
- Evidence Handling
- Does lab have ability to assist other labs
- Laboratory safety
- Staff
- Existing administrative/organizational structure

3. Analysis of Conformance with Standards and Regulations

- American Society of Crime Lab Directors/Laboratory Accreditation Board (ASCLD/LAB) or equivalent
- American Board of Criminalists (ABC)
- Any additional functional standards for specific laboratory services

4. Future Program Development Based on Findings

- Minimum to maximum actions to achieve improvements
- Consequences of those actions
- Opinion of costs

5. Capital Equipment Existing and Future Replacement Needs

Schedule

6. Assessment of Training Needs

- Sources
- Funding
- * To help the state develop a strategic master plan for creating forensic capabilities for the long term, and leveraging Federal, State and Local Resources where appropriate.
- * Review turn around times and advise on what would be needed to achieve an overall of 30 day turn around.
- b) Specifically, the assessment process includes using a team of national forensic experts who will examine the state's forensic services needs and capabilities in all areas that are accredited by ASCLD/LAB (2000 Version) as appropriate per lab. The assessment will be conducted through:
 - * Developing surveys to collect data that reflects caseloads, capabilities and capacity from:

Anne Arundel County Police Crime Laboratory, Millersville, MD.

- Drug Analysis
- Latent Prints
- PCR DNA
- Serology Screening
- Crime Scene Processing
- Photography

Baltimore County Police Crime Laboratory, Towson, MD.

- Drug Analysis
- ► Footwear/Tire Impressions
- Drug Fire/IBIS
- PCR DNA
- Photography
- Trace Evidence
- Latent Prints
- Validating STR DNA
- Digital Imaging
- AFIS System
- Firearms/Toolmarks
- Questioned Documents
- ► Crime Scene Processing
- Computer Crimes

Baltimore City Police Crime Laboratory, Baltimore, MD.

- Drug Analysis
- ► Footwear/Tire Impressions
- Drug Fire/IBIS
- Photography
- ► Trace Evidence
- Breath Alyzer
- Arson Analysis
- ► Latent Prints
- Serology
- STR DNA
- ► GSR Examinations
- AFIS System
- ► Firearms/Toolmarks
- Questioned Documents
- Crime Scene Processing
- Polygraph

Hagerstown City Police Crime Laboratory, Hagerstown, MD.

- Drug Analysis
- ► Footwear/Tire Impressions
- Photography
- Digital Imaging
- ► Latent Prints

- Serology
- ▶ Bloodstain Pattern Interpretation
- Crime Scene Processing

Maryland State Police Crime Laboratory - Pikesville, MD.

- Drug Analysis
- ► Footwear/Tire Impressions
- Drug Fire/IBIS
- PCR DNA
- Photography
- ► Trace Evidence
- Toxicology
- Latent Prints
- Serology
- STR DNA
- ► GSR Examinations
- ► AFIS System
- ► Firearms/Toolmarks
- ▶ Bloodstain Pattern Interpretation
- Ouestioned Documents
- Crime Scene Processing

Berlin Crime Laboratory - Berlin, MD.

Drug Analysis

Hagerstown Crime Laboratory - Hagerstown, MD.

Drug Analysis

Montgomery County Police Crime Laboratory - Rockville, MD.

- Drug Analysis
- Footwear/Tire Impressions
- Drug Fire/IBIS
- PCR DNA
- Photography
- ► Trace Evidence
- Latent Prints
- Serology
- STR DNA
- AFIS System
- Firearms/Toolmarks
- Crime Scene Processing

Computer Crimes

Ocean City Police Crime Laboratory - Ocean City, MD.

Drug Analysis

Office of the Chief Medical Examiner - Baltimore, MD.

- Toxicology
- Autopsy

Prince George's Co. Police Crime Laboratory - Landover, MD.

- Drug Analysis
- ► Footwear/Tire Impressions
- Drug Fire/IBIS
- PCR DNA
- Photography
- Latent Prints
- Serology
- STR DNA
- AFIS System
- ► Firearms/Toolmarks
- Crime Scene Processing
- Computer Crimes
- c) Developing and conducting a survey of the police departments throughout the state (approximately 70) as well as a State Police Barrack in each county to ascertain current forensic services and identify unmet needs and.,
- d) Developing and conducting a survey of State's Attorney's Offices for each county and Baltimore City to determine current forensic service and level of satisfaction.

4. KEY PRODUCTS

The key product for this project is a final report that will discuss the findings of the assessment with regard to the state's current needs and capabilities; make recommendations for short term improvements to enhance the current delivery of forensic laboratory services; and offer long term recommendations for the delivery of forensic services statewide. The final report would be preceded by a series of drafts that will allow for review and comments from key members of the Statewide Forensic Sciences Tasks Force

5. APPROXIMATE PROJECT TIME LINE

- 1) Develop survey questions and meet the task force subcommittees within 30 days of bid award to discuss the intended surveys and to set up a start date for the survey. (30 days)
- 2) Conduct surveys. (60 days)
- 3) Produce draft report and meet with subcommittee to discuss content. (5 copies) (60 days)
- 4) Submit final report and make presentation to full Statewide Forensic Science Task Force. (25 copies and WordPerfect floppy disk copy) (Approximately 30 days)
- 5) Total Time Line. (Approximately 6 months)

6. VENDOR QUALIFICATIONS

- ** As specified in Technical Submission and Minimum Qualifications in this bid package
- 1) Must have verifiable hands on forensic experience.
- 2) Must be knowledgeable of the ASCLD/LAB criteria for Accreditation.
- 3) Must provide references from similar studies.
- 4) Please include items under A) Minimum Technical Qualifications/Requirements. Pages 9 10.

ATTACHMENT 4 ("Master Plan" Consultant Study)



National Forensic Science Technology Center

PO Box 2710 Largo, FL 33779

Phone 727.549.6067 Fax 727.549.6070 E-Mail admin@nfstc.org

Needs Assessment of Forensic Laboratory Services in the State of Maryland



REPORT

13 September 2001

NFSTc cience Serving Justice

The National Forensic Science Technology Center Inc

September 13, 2001

Michael G Sheppo, President Clifton Vander Ark, Secretary Manuel Valadez Jr, Treasurer Elizabeth Carpenter Vincent Crispino Barry AJ Fisher Benjamin A Perillo

Dr. Louis Portis Maryland State Police Crime Laboratory 1201 Reisterstown Road Pikesville, MD 21208

Dear Dr. Portis:

The National Forensic Science Technology Center (NFSTC) is pleased to provide you the report for the "NEEDS ASSESSMENT OF FORENSIC LABORATORY SERVICES IN THE STATE OF MARYLAND."

This report is the work product of several weeks of effort from the NFSTC and the Maryland Forensic Science Forum. The NFSTC found the people responsible for the provision of forensic services to be concerned with doing the best job possible.

The NFSTC hopes that this report will be used as the basis for the improvement and proper resourcing of the forensic services provide to the criminal justice community in Maryland.

If the NFSTC can be of any assistance in the future in regards to forensic services, please do not hesitate to call.

Sincerely,

ASCLD ASCLD/LAB **FBI** Laboratory

Voting Members

AAFS ABC **BATF** DEA

St Petersburg Junior College University of Central Florida University of South Florida Florida International University

> **Mailing Address NFSTC**

P.O. Box 2710 Largo, FL 33779

Telephone (727) 549-6067 Fax (727) 549-6070

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David Epstein Director of

Scientific Services

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Section 1 Executive Summary

On January 27th, 2000, Governor Parris Glendening signed Executive Order 01.01.2000.04 establishing the Statewide Forensic Sciences Task Force. In the Order, the Governor recognized the need to enhance the quality of forensic services "to provide law enforcement with the best forensic services technology available to detect and prosecute criminals." Additionally, he recognized the "need for coordinated efforts to enhance laboratory accreditation, training and equipment among the crime laboratories in the State".

With this backdrop, the National Forensic Science Technology Center (NFSTC) was contracted to perform this Statewide Needs Assessment, pursuant to Request for Proposals W00B1200079 issued by the Maryland State Police. Specifically, the NFSTC was employed to assess the laboratories by targeting three discreet groups – the eleven laboratories operating in Maryland, the various police departments in Maryland, and the 24 State's Attorney's Offices in Maryland.

In addition to written surveys of the laboratories and the other two target groups, the NFSTC performed a site visit and evaluation of each laboratory. The survey instruments and selected responses are reproduced in the Appendix of this report. The accreditation program of the American Society of Crime Laboratory Directors – Laboratory Accreditation Board (ASCLD/LAB) was used as a guideline in reviewing the laboratories. Another technique utilized in the assessment was the formation of the Maryland Forum, a group of approximately 20 laboratory staff members. The Forum was given training in problem solving, skilled on working with laboratory stakeholders, and tasked with interfacing with stakeholders in their region to facilitate the completion of the written surveys. The Forum also analyzed the survey data, with assistance from the NFSTC, and made their own set of recommendations, also found in the Appendix.

The primary recommendation for improvement of forensic service delivery is that the Governor's Task Force, or an equivalent body, be made a permanent body with the authority to carry out the responsibility of implementing the recommendations found in Section 3 of this report. This overall recommendation is based on the need to steer and focus the efforts within Maryland to provide timely, accurate forensic services. The current arrangement of city, county and state operated independent laboratories is inefficient. Consolidation of laboratories, while an admirable goal, appears unlikely in Maryland. However, a coordinated, collaborative effort is possible, and essential to the success of all forensic laboratories.

The recommendations found in Section 3 focus on the cooperative efforts that should be managed by the Task Force, including the coordination of specific service delivery, such as DNA analysis, trace evidence analysis, fingerprint and firearms databases, and training, and general topics such as quality assurance, communication, and certification of personnel.

Findings and comments for each laboratory, as well as statewide trends are listed in Section 2. The layout of that Section is based on the Request for Proposal, which required the NFSTC to assess:

- Existing Physical Plants
- Work Volume Conditions
- Conformance with Standards and Regulations
- Training
- Quality Management

This report does not include a "shopping list" of items to purchase or laboratories to construct. The need for updated equipment is minimal, as the laboratories have been able to use grant and forfeiture funds for equipment purchases. Specific needs for equipment are addressed in Section 2. Where facilities are enhanced or constructed, costs will vary by location, size, and the process chosen (i.e. - renovation of existing buildings, new construction, addition to existing space).

Each of the laboratories assessed in this project assisted the NFSTC through open communication and are to be commended for their hard work and dedication to the improvement of forensic science service delivery.

The work of the Maryland Forum was invaluable to the collection and analysis of the stakeholder survey responses. The group should be used as a resource to the Task Force, as they possess a thorough understanding of the needs of the laboratories and the stakeholders.

2.1.11.2 Work volume conditions - PGPCL

Drug cases submitted average 380 a month. However, the lab analyzes just 275 a month. Drug cases are tested only when court dates are assigned. Each analyst is allowed to use their own work forms, making case review problematic.

With the current staffing, the laboratory should be able to analyze all submitted cases. Analytical procedures should be reviewed and compared with laboratories achieving higher productivity, and then changed to keep up with submissions. Standardized, efficient operations are needed.

The county procurement system is laborious and should be streamlined. Scientific staff waste time ensuring purchase orders get through the system that now requires sign-off at seven different stages.

This is another example of the need for a centralized laboratory management system.

The extended validation time for DNA analysis has dramatically reduced laboratory productivity in the area of serology, causing delays and backlogs in violent crime investigations. Lab staff have attempted to maintain both casework and validation responsibilities, causing neither to be performed adequately. Current lab staff size is not sufficient to handle the work volume expected when cases are accepted later this year.

Coordinated efforts in DNA validation and analysis with other laboratories must be sought. (See statewide recommendations).

The firearms & toolmarks and latent print & AFIS units are operating at the level of submissions. In the AFIS area, PGPCL participates in both the Regional AFIS (RAFIS) and the Maryland AFIS (MAFIS). Since these two programs utilize incompatible hardware and software, duplication of effort is required. The primary system used is RAFIS, due to the proximity of Prince George's county to the Washington Metro area. If a latent print is to be searched on the MAFIS system, it must be done manually.

If submissions increase, staffing and workflow will need to be reviewed in both units. There should be funding made available for the automated searching of the state database (MAFIS).

The forensic imaging and computer evidence units appear to be high quality, with adequate equipment to meet the needs of the county.

2.1.11.3 Conformance with standards - PGPCL

The PGPCL does not meet either the ASCLD/LAB requirements or the National Standards on DNA Analysis. Gaps include training programs and records, competency records, proficiency testing, reagent logs, environmental controls, educational requirements in DNA, quality manual, and internal audits. The ABC currently certifies one staff member.

Once a centralized management system has been established, a strong quality assurance system must be initiated and carried out. See section 2.1.11.5 for more comment.

2.1.11.4 Training - PGPCL

The current budget of \$41,500 for training relies heavily on grant funding.

2.1.10.5 Quality Management - OCME

For the toxicology lab, 0.6 FTE are used to maintain the quality system, perform file review, and manage the proficiency test program. Purchases of proficiency tests amount to \$3,000 a year. The pathology staff performs case review daily as part of the fellowship program.

This level of support appears appropriate to maintain the accreditations of ABFT and NAME.

2.1.11 Prince George's County Police Crime Lab (PGPCL)

The PGPCL provides drug, serological, firearm & toolmark, firearms database, latent print and AFIS, and computer / digital evidence testing to the County of Prince George's County. The lab is working towards DNA analysis implementation. Cases needing DNA analysis are submitted to a private laboratory. As noted in the section on MPCL, PGPCL hosts examiners from Montgomery County in the firearms & toolmarks unit and the latent prints and AFIS unit. The laboratory functions as if it were five separate labs, due to the lack of an overall laboratory director and a dedicated support staff. Each unit uses differing management systems, different safety programs, different evidence tracking systems, etc. The laboratory is not accredited by ASCLD/LAB.

The laboratory would benefit from and should institute a centralized management system.

2.1.11.1 Physical plant - PGPCL

The laboratory is spread upon throughout the Police Administration building. The DNA facility is modern and well equipped, however, will not have enough space once it is fully staffed. The Firearms section, while adequate, lacked enough safety hoods to accommodate serial number restorations and distance determinations. The Computer Forensic section, while adequate, would not allow for future growth. The latent print and AFIS unit is located in another building remote from the laboratory. This does not promote the easy exchange of communication among staff members. The Evidence Control unit space is inadequate. This includes the vehicle examination area, clothes drying area and desk areas. The controlled substance area is inadequate. The location of the various components does not foster easy communication, evidence transfer or other efficiencies.

The laboratory does not use a LIMS system throughout. Time consuming manual systems are in place for evidence tracking and case management.

Laboratory safety equipment, supplies, and training range from poor to excellent, due to the dispersed management system.

Much of the existing capital equipment is in good condition and is sufficient for current workloads. Exceptions are computers, networking and the FT-IR. The laboratory budget for equipment replacement is \$268,200.

The physical plant is insufficient for current needs, and its design and layout hinders productivity and work flow. Centralized facilities coupled with centralized management are needed for this laboratory.

The computer system has been cobbled together with little state support. This limits research, statistical capacity, and forces duplicate work.

Laboratory safety equipment, supplies, and training are in excellent condition. However, ventilation in the building is poor, which is a concern when considering potential for airborne transfer of diseases.

Existing capital equipment is in fair condition, however, is aged and in need of replacement and upgrade. The laboratory budget for equipment replacement is inadequate for current needs.

The OCME has long outgrown its physical plant. Attempts have been made to upgrade parts of the 32-year-old facility such as providing better ventilation, but the existing facility is inadequate for current use. The number of cases is expected to increase in future years as the population ages and court cases become more complex. The closeness of examinations is a disaster waiting to happen. There is no obvious way to improve this facility short of building or renovating a much larger facility.

Future budgets need to be increased to replace old equipment or add newer technologies. Updated x-ray equipment is needed. A liquid chromatograph - mass spectrometer should be added to analyze more drugs and metabolites, such as thermally labile materials. Also, a computer network with proper software should be purchased and installed, with sufficient training to improve efficiency.

2.1.10.2 Work volume conditions - OCME

Despite cramped conditions and older equipment, the toxicology laboratory maintains a three to five day turnaround on casework. The pathologists also keep current with their casework. The office is at a disadvantage in attracting and retaining a full professional staff because of the North America wide shortage of forensic pathologists and low wages. New programs have been added over the years, such as the child mortality review committee. While these are necessary and worthwhile programs, staffing and budgets are not adjusted to accommodate the additional work.

The pay scale for staff, especially forensic pathologists, should be reviewed and adjusted as necessary to retain and attract staff. As programs are added to the OCME workload, budgets should be adjusted to perform the program work adequately.

2.1.10.3 Conformance with standards - OCME

The American Board of Forensic Toxicology (ABFT) certifies the Laboratory. This involves the completion of a checklist whereby all aspects of laboratory operation are reviewed. Proficiency testing performance is evaluated annually. Every other year, inspectors representing the ABFT perform a two-day on-site inspection. The OCME also maintains accreditation to standards of the National Association of Medical Examiners (NAME).

2.1.10.4 Training - OCME

The current budget of \$1,000 is far below what is needed for the 10 staff in toxicology and the forensic pathologists. Pathologists are supported for continuing education if they are presenting scientific papers or if sponsored by a University or foundation.

Guaranteed continuing education is fairly standard in terms of employment in today's market. An appropriate training budget should be effected for all testifying and support staff. As a minimum, one course or conference every two years is suggested.

microscope are the only equipment available. This prevents the normal practice of drug analysis. There is no laboratory budget for equipment replacement.

A major influx of spending (around \$200,000) is needed for equipment and supplies to bring this lab into the current state of drug analysis.

2.1.9.2 Work volume conditions - OCPCL

The laboratory receives about 700 cases a year and analyses 500 of these. A properly outfitted laboratory with currently trained staff can easily analyze 1,200 cases per analyst a year.

The volume of work at OCPCL falls below that required to maintain a scientific staff. See the recommendation section for more on this topic.

2.1.9.3 Conformance with standards - OCPCL

The OCPCL is not accredited by ASCLD/LAB and is lacking in most areas required to become accredited. The lab and evidence security are adequate. However, in its current state and level of agency support the lab is potentially not accreditable. The ABC does not certify the staff.

2.1.9.4 Training - OCPCL

The current budget of \$1,500 is adequate for one analyst to maintain proficiency. However, if new equipment is purchased and installed, this amount would need to be tripled for one to two years.

The laboratory should aim for \$1,000 to \$1,500 per scientific staff member in its training budget. This amount can be lowered with a coordinated training effort at the statewide level.

2.1.9.5 Quality Management - OCPCL

Proficiency tests are not currently purchased, and case file review does not occur. A quality system is not in place, therefore it is not supported by FTEs.

2.1.10 Office of Chief Medical Examiner (OCME)

The OCME provides pathology and post mortem toxicology services to the State of Maryland. Approximately 8,000 investigations a year are performed, requiring about 3,800 autopsies a year. There have been just three Chief Medical Examiners between 1939 and 2001, making this a stable and respected office. In addition to casework, the office is known for its research and teaching. Medical school fellows work with staff physicians, making the office both efficient and a source of vital educational opportunity.

2.1.10.1 Physical plant - OCME

The OCME has occupied the same facility for 32 years. It was constructed to handle 1,500 autopsies a year and the requisite toxicology testing. With more than double that number of autopsies being performed, there is little space separating cases. There is minimal separation in the main room, where collection of trace and DNA evidence is performed. Body storage facilities are inadequate particularly in the event of several days of heavy use or a mass disaster. Offices are cramped together and no more offices can be squeezed into the existing space.

The extended validation time for DNA analysis has dramatically reduced laboratory productivity in the area of serology, causing delays and backlogs in violent crime investigations. The laboratory has outsourced the analysis requests while performing validation tests.

Coordinated efforts in DNA validation and analysis with other laboratories must be sought. (See statewide recommendations).

2.1.8.3 Conformance with standards - MPCL

Although the laboratory has participated in proficiency testing for over a decade, and makes training available to all staff, several other ASCLD/LAB quality assurance requirements are absent. These include a quality manual, internal audits, training programs in each discipline, and updated policies and procedures. The ABC currently certifies four staff members.

2.1.8.4 Training - MPCL

The current budget of \$13,792 is adequate.

A statewide coordinated training system would allow for even more training with the amount MPCL budgets.

2.1.8.5 Quality Management - MPCL

The laboratory reports 0.7 FTEs for the duties of quality management, file review, and proficiency test program management and \$2,960 for the purchase of proficiency samples.

This level of quality support is adequate for a lab the size of MPCL. However, the number of FTEs has just been increased with the hiring of a new drug analyst, allowing the Chief Forensic Scientist the time to focus on quality management. Additional short-term resources, such as external assistance, should be used to speed the implementation of a quality system that meets the forensic community requirements.

2.1.9 Ocean City Police Crime Laboratory (OCPCL)

The OCPCL provides drug testing to Ocean City. Police investigations requiring other analysis are submitted to the MSPCL-P. The same lone employee has staffed the OCPCL for nearly 30 years.

2.1.9.1 Physical plant - OCPCL

The laboratory facility is about six years old and in good condition. It is sized appropriately for one analyst.

The laboratory uses a customized spreadsheet program to track evidence and generate written reports.

Laboratory safety equipment and supplies are in good condition. No evidence of safety training was observed.

Existing capital equipment is in good condition, but is completely outdated for the needs of a drug analysis laboratory. A packed column GC and a dispersive infrared spectrophotometer and a compound

Training records should be reviewed to determine if training is in fact being extended to all staff. The implementation of a LIMS should be supported by thorough training to increase productivity and effectiveness of the system. Supervisory and management training would benefit both new and experienced personnel. Based on the shortage of computers in DNA and other units, it is likely that analysts are in need of training in computer systems and common applications. The amount budgeted and spent may be lowered with a coordinated training effort at the statewide level.

2.1.7.5 Quality Management - MSPCL-P

The laboratory reports 1.73 FTE for performing duties of file review, 1.0 FTE for proficiency test program management, and 3.8 FTE for quality system maintenance and \$10,000 for the purchase of proficiency samples.

With the size of this laboratory, 3 staff positions should be dedicated to quality management, with support of the supervisors and other staff performing audits, file review, and quality system maintenance.

2.1.8 Montgomery County Police Crime Laboratory (MPCL)

The MPCL provides drug, trace evidence, and serological testing to the County of Montgomery. A parttime contractor performs trace evidence analysis. The lab is working towards DNA analysis implementation, and has begun preparations for ASCLD/LAB accreditation. The investigating officer outsources cases needing DNA analysis to a private laboratory. Additionally, MPCL has a cooperative agreement with Prince George's County to share space and personnel for the provision of firearms & toolmark analysis and latent print & AFIS analysis.

2.1.8.1 Physical plant - MPCL

The laboratory has made efficient use of space, however, has outgrown its space with the additional staff brought in for DNA. The DNA laboratories were designed for 2 staff, not the 3 currently slotted. There is no room to perform trace evidence analysis. The drug analysis area is very cramped, but workable.

The laboratory does not use a LIMS system. Evidence tracking is done on a stand-alone computer. Case management and statistics are maintained by a manual system.

Laboratory safety equipment, supplies, and training are in fair condition.

Existing capital equipment is in good condition and is sufficient for current workloads. The laboratory has no budget for equipment replacement.

The physical plant is insufficient for current needs. Expected growth in staff will necessitate additional space and equipment. Future budgets will need to be increased in years where older equipment is scheduled for replacement.

2.1.8.2 Work volume conditions - MPCL

Drug cases submitted average 300 a month. However, the lab analyses just over 200 a month.

With the current staffing, the laboratory should be able to analyze all submitted cases. Analytical procedures should be reviewed and compared with laboratories achieving higher productivity, and then changed to keep up with submissions.

Although they have kept up with the casework in those areas, minimal training progress in the other areas of trace evidence analysis has been made.

The trainees should continue to maintain the fire debris and GSR analysis and complete their training in other areas. To complete the training and to reduce the backlog, the laboratory should bring in another trained trace evidence analyst to share the training burden and the excess caseload. Having multiple trained examiners in a unit is both productive and improves quality through professional interaction.

In fingerprint comparison and AFIS, space is insufficient for tasks being performed. Backlogs are being reduced with the filling of two vacant positions. Equipment is in good working order and represents the latest technology. The unit, which also performs footwear and tire track comparisons, does not have a computer to run the SICAR Footwear System software.

The new lab space will benefit the latent print unit. In the meantime, additional space should be sought and a computer provided for the SICAR software.

In firearms, vacant positions and staff turnover created backlog situations. Recent hires will reduce backlogs and improve turnaround times. Equipment in this area is sound and sufficient.

Firearms analysis will also benefit from new space and a full staff.

In biology screening and DNA analysis, backlogs and low productivity were noted. About half of the staff is in training. Due to the lack of space in the main laboratory, an off-site DNA lab was established, reducing communication between the biology screeners and the DNA analysts. Some DNA analysts expressed reluctance to have someone else screen their case and prefer to screen their own casework. The use of routine product gel analysis for each case increases analysis time. The current use of the Promega PowerPlex 1.1 prevents casework results from being uploaded to CODIS. Plans are in place to validate the new 16 loci kits from Promega, which will be compatible with CODIS. The DNA analysis unit uses old style thermal cyclers, which are time consuming to use.

If the laboratory chooses to have an analyst work a case from start to finish, efficiencies should be sought to increase productivity, meeting stakeholder needs. Until all analysts can complete their training and be brought back into the same building, improved communications must be established.

The DNA laboratory should purchase new thermal cyclers. New instruments omit the use of oil, and are simple and less time consuming to operate. These points enforce the need for coordinated efforts in DNA validation and analysis with other laboratories. (See statewide recommendations).

2.1.7.3 Conformance with standards - MSPCL-P

As mentioned previously, MSPCL-P maintains ASCLD/LAB accreditation. ABC currently certifies no staff members. IAI certification is held by one person in footwear / tire tracks, one person in crime scene, and three persons in latent prints.

2.1.7.4 Training - MSPCL-P

The current MSP budget of \$107,000 is at a good level for the approximately 70 forensic scientists system wide. Pikesville lab does not report the same lack of training opportunities as the Berlin and Hagerstown lab.

2.1.6.5 Quality Management – MSPCL-H

The laboratory reports 1.4 FTE for the duties of quality management, file review, and proficiency test program management. The Pikesville Lab provides proficiency samples to MSPCL-H.

2.1.7 Maryland State Police Crime Laboratory – Pikesville (MSPCL-P)

The MSPCL-P lab performs drug, biological screening / DNA, firearms & toolmark, firearms database, trace evidence, fire debris, latent fingerprint development, comparison and database, blood alcohol, question document, and shoe & tire track, testing for the State of Maryland. MSPCL-P was accredited by ASCLD/LAB in 2000. DNA CODIS samples are outsourced to private laboratory.

2.1.7.1 Physical plant - MSPCL-P

The laboratory has outgrown its current laboratory space and has plans to build a new facility. Plans reviewed by NFSTC appear to be sufficient for current and future use, assuming the larger floor plan recently proposed is constructed. The new design will allow for a centralized evidence unit, which is lacking in the current facility. This should improve efficiency and control of evidence movement through the laboratories.

The laboratory does not use a LIMS. The laboratory uses a computerized evidence inventory system ("Q-Tel"). However, it is not relied on to document evidence transfers, as it does not use secure transactions. Much time is spent in the manual systems in place to track analyst performance, case turnaround time, and case management.

Laboratory safety equipment, supplies, and training are in fair condition.

Existing capital equipment is in good condition and is most areas is sufficient for current workloads. The laboratory budget for equipment replacement is adequate for current needs.

Construction of the new laboratory space must proceed quickly. This will alleviate productivity problems related to space and communication issues. A LIMS system should be installed to increase productivity in all areas of the laboratory. Future budgets will need to be increased in years where older equipment is scheduled for replacement.

2.1.7.2 Work volume conditions - MSPCL-P

Backlogs and long turnaround times exist in drug analysis, trace evidence analysis, fingerprint comparison and AFIS, firearms examination and IBIS / Drugfire, and biology screening / DNA analysis.

In the drug analysis area the equipment appears to be sufficient in both condition and numbers. Staff levels appear to be sufficient to handle the caseload. Two of the analysts perform all blood alcohol concentration testing. One analyst is the laboratory safety officer, and a fourth is completing training.

Management should study the drug analysis scheme and make a comparison with laboratories demonstrating higher productivity and changes made in Pikesville. With efficient systems in place, a chemist can produce more cases in a month than is currently achieved.

In trace evidence, low productivity and staff numbers were noted. The trace evidence trainees have been in training for over 2 years with one working fire debris cases and the other gun shot residue (GSR) cases.

would have been worse had the MSP not redistricted the laboratory from 7 counties down to 5, with cases from the other 2 counties now being sent to Pikesville. A newly hired, experienced, analyst was to report to work within the week to undergo a brief training period and competency testing.

The lab uses Gas Chromatography (GC) and Gas Chromatography – Mass Spectrometry (GC – MS) in many analyses to give the "2nd" test, rather than using retention data of GC/MS analysis. Thin Layer Chromatography is still universally used in marijuana analysis.

The MSPCL statewide process for technical review is cumbersome and was blamed on requirements of ASCLD/ LAB, but is not required nor is it the norm for crime labs. The current process is: Analysis / Analyst review / Data review by peer / Report typed / Analyst review of report & signature / technical review of report.

Communications with prosecutors is not optimal. An 'on-call' system is supposedly in place, but with most offices they are not truly on-call. MSPCL protocol requires analysts with multiple subpoenas to call the prosecutor who subpoenaed him first to determine if need for testimony. If needed, the analysts must call subsequent subpoenaing prosecutors to report their unavailability. If not needed for testimony by the first prosecutor, the analyst must call the 2nd prosecutor to determine the need to attend trial, and repeat the process until all prosecutors are called and need determined.

As noted in the Berlin lab, the Hagerstown laboratory staff and supervisor report dissatisfaction in being left out of decisions in quality assurance that directly impact the work performed in drug analysis. More efficient ways to meet quality assurance requirements are desired.

Current CDS protocols should be reviewed in MSPCL to try and improve efficiency and productivity. Also, the process of case review should be streamlined. A single technical review after signature by the analyst is sufficient to meet accreditation requirements for and prevents the release of erroneous reports. The current process of administrative review of cases files is satisfactory.

The court scheduling system is a cumbersome and inefficient process. A true on-call system and full use of Code of Maryland Regulations §10-1001 through §10-1003 would make a significant impact on efficiency.

MSPCL review of QA and QC methods should streamline analysis.

2.1.6.3 Conformance with standards - MSPCL-H

As mentioned previously, MSPCL-H maintains ASCLD/LAB accreditation. ABC currently certifies no staff members.

2.1.6.4 Training - MSPCL-H

The current MSP budget of \$107,000 is at a good level for the approximately 70 forensic scientists system wide. However, like the Berlin Lab supervisor, the Hagerstown supervisor reports training funds are nearly unavailable, and little training time is available if a backlog exists.

The same comments made for MSPCL-B apply here.

2.1.5.3 Conformance with standards - MSPCL-B

As mentioned previously, MSPCL-B maintains ASCLD/LAB accreditation. ABC currently certifies no staff members.

2.1.5.4 Training - MSPCL-B

The current MSP budget of \$107,000 is at a good level for the approximately 70 forensic scientists system wide. However, the laboratory supervisor reports "Money is allocated in the annual budget, but it is an easy target when money is need elsewhere in the Department, i.e., gasoline. Also since training is not mandated for chemists it is not seen as an priority item." [sic]

Maintaining a professional scientific staff requires continuing training and education. This budgeted amount may be spent more efficiently with a coordinated training effort at the statewide level.

2.1.5.5 Quality Management - MSPCL-B

The laboratory reports 0.5 FTE for the duties of quality management, file review, and proficiency test program management. The Pikesville Lab provides proficiency samples to MSPCL-B.

2.1.6 Maryland State Police Crime Laboratory – Hagerstown (MSPCL-H)

The MSPCL-H performs drug testing for five to seven counties in western Maryland. The number of counties has fluctuated with staff size. ASCLD/LAB accredited MSPCL-H in 2000.

2.1.6.1 Physical plant - MSPCL-H

The laboratory has made efficient use of space, however, it is insufficient for 3 analysts and the secretary / evidence custodian. The physical space has a moderate impact on casework productivity.

The laboratory uses a computerized evidence inventory system ("Q-Tel"). However, it is not relied on to document evidence transfers, as it does not use secure transactions.

Laboratory safety equipment, supplies, and training are in excellent condition.

Existing capital equipment is in good condition and is sufficient for current workloads. The laboratory budget for equipment replacement is adequate for current needs. Future budgets will need to be increased in years where older equipment is scheduled for replacement.

The physical plant has been outgrown. An increase from 800 to 2,000 square feet would be sufficient for current operations. Addition of staff or services would require more space. A full function LIMS should be considered to reduce the double work of handwritten and computer tracking of chain of custody data, as well as manual typing of reports.

2.1.6.2 Work volume conditions - MSPCL-H

The laboratory was opened in 1996 to improve case turnaround time and court availability for CDS cases. This has worked, however, with the resignation by 1 of the 3 analysts 6 months prior to the NFSTC site visit, the turnaround and backlog have increased significantly. On the day of the site visit (May 2, 2001) the oldest case on hand was from February 2001, and over 400 cases were backlogged. This situation

2.1.4.5 Quality Management -HPCL

The laboratory currently reports 0.25 FTEs for quality system maintenance and \$600 for the purchase of proficiency test materials.

As recommended above, the use of a clerk and removing the job of property maintenance would allow staff to take on the required quality management roles.

2.1.5 Maryland State Police Crime Laboratory – Berlin (MSPCL-B)

The MSPCL-B performs drug testing for most of the counties on the Eastern Shore of Maryland. ASCLD/LAB accredited MSPCL-B in 2000.

2.1.5.1 Physical plant - MSPCL-B

The laboratory has made efficient use of space, however, has no room for expansion of personnel or additional services. Air conditioning deficiencies are in the process of being corrected. The physical space does not make an impact on casework productivity.

The laboratory uses a computerized evidence inventory system ("Q-Tel"). However, it is not relied on to document evidence transfers, as it does not use secure transactions.

Laboratory safety equipment, supplies, and training are in excellent condition. An exception may be the laboratory fume hood, which displays metal corrosion and pitting to the ductwork. This may indicate leakage.

Existing capital equipment is in good condition and is sufficient for current workloads. The laboratory budget for equipment replacement is adequate for current needs. Future budgets will need to be increased in years where older equipment is scheduled for replacement.

The physical plant is sufficient for current needs. Any growth in staffing or service provision will require additional space and equipment. A full function LIMS should be considered to reduce the double work of handwritten and computer tracking of chain of custody data, as well as manual typing of reports.

2.1.5.2 Work volume conditions - MSPCL-B

Laboratory productivity is high, due to a well thought-out analysis scheme. The use of monitored, paid, overtime proved useful in the past, but is no longer available.

The laboratory staff and supervisor report dissatisfaction in being left out of decisions in quality assurance that directly impact the work performed in drug analysis. More efficient ways to meet quality assurance requirements are desired.

The use of some overtime pay allowed MSPCL-B to maintain a minimal backlog, and a quick turnaround time. The laboratory supervisor, who has other assigned duties, carries a significant caseload. Addition of another drug analyst would allow her to perform those other duties, much of which is scheduled offsite. MSPCL review of QA and QC methods should streamline analysis.

Lab computers are available and in use. Digital photography and Computer Aided Drafting files are integrated into case reports as needed. A T-1 Internet connection is in place to aid research. Management information is maintained manually in a spreadsheet program.

Some safety equipment is present. However, no acid / caustic cabinet is available. The safety shower is located in a hallway, requiring passage through the laboratory door to utilize. The safety shower has not been tested in at least 5 years. A documented, effective, safety program is not present.

A documented safety program should be developed and maintained, to include staff training. Equipment and supplies for safety and chemical containment must be present as well.

Capital equipment ranges from adequate to excellent.

Plans should be made to update laboratory microscopes, which are old. The current equipment budget of \$3,000 should be increased to cover regular replacement of aging equipment and to add necessary safety equipment.

2.1.4.2 Work volume conditions - HPCL

The HPCL employs two well-educated and well-trained professionals who provide up to date analysis. All death scenes within Washington County are attended by staff, giving assistance to investigators. The staff also provides case management by screening items before sending them to other labs, which speeds the analysis time, and aids the local investigators. The staff also performs departmental property management. There is no support staff to handle clerical duties.

Work volume is well managed. Use of professional staff to manage the property room is not a cost effective decision. The two crime lab staff should be freed from that duty to allow the time necessary to build and maintain a quality system. Addition of a dedicated clerk would also allow the staff the time to implement a quality system.

2.1.4.3 Conformance with standards - HPCL

The laboratory has numerous gaps in its quality system, which will take manpower and time to correct. Examples of gaps include space requirements, proficiency tests in all laboratory disciplines, up to date training programs, safety programs, employee development program, and auditing programs.

ABC certifies both staff members.

Cooperative programs with other laboratories will assist the laboratory in the difficult task of meeting ASCLD/LAB program requirements.

2.1.4.4 Training - HPCL

The current budget of \$1,000 is below the funding level needed for 2 forensic scientists.

The laboratory should aim for \$1,000 to \$1,500 per scientific staff member in its training budget. This amount may be lowered with a coordinated training effort at the statewide level.

Although BCPFSS has qualified analysts, there are an insufficient number. The high cost of hiring, training, and maintaining a professional, qualified staff is amplified when staff leave. A statewide, balanced, and comparable salary scale, albeit more costly at first glance, would save both dollars and increase productivity long-term. If no action is taken, the staff turnover in Maryland will continue.

2.1.3.3 Conformance with standards - BCPFSS

As mentioned previously, BCPFSS has demonstrated conformance with program requirements of ASCLD/LAB. ABC certifies one staff member and six staff are seeking IAI certification.

2.1.3.4 Training - BCPFSS

The current budget of \$23,900 is inadequate for current staff. With so many vacancies to fill, additional funds will be required once staff size increases.

The laboratory should aim for \$1,000 to \$1,500 per scientific staff member in its training budget. This amount may be lowered with a coordinated training effort at the statewide level.

2.1.3.5 Quality Management -BCPFSS

The laboratory reports 3.5 FTEs for the duties of quality management, file review, and proficiency test program management and \$3,300 for the purchase of proficiency samples.

With the size of this laboratory, 2 staff positions should be dedicated to quality management, with support of the supervisors and other staff performing audits, file review, and quality system maintenance. The plan to add crime scene analysis to the ASCLD/LAB accreditation will enhance laboratory quality.

2.1.4 Hagerstown Police Crime Laboratory (HPCL)

The HPCL performs drug, biology screening, trace evidence, latent print development, impression evidence, and computer evidence testing for the City of Hagerstown and Washington County. Cases needing other analysis are submitted to other laboratories. This lab is not ASCLD/LAB accredited, however, the parent agency has been accredited by CALEA since 1996, and is supportive of laboratory accreditation.

2.1.4.1 Physical plant - HPCL

The laboratory facilities are undersized and separated into 2 areas - the basement lab space and the 3rd floor office space. When needing to separately dry crime scene evidence, a jail cell has been employed so as to eliminate cross transfer of materials between evidence items. Local rules require biohazards to be stored separately. This is done, however, that space is overflowing with materials, despite the conscientious effort made by staff to turnaround this type of evidence. Additionally, in the past the basement has flooded during a heavy rainstorm, causing damage to physical evidence. The likelihood of this recurring was reduced by drainage improvements to the grounds, but could occur again.

The physical plant is insufficient for current needs, and is a moderate impact on casework productivity. Lab space is minimal, and storage space is insufficient. Either additional space within the department should be made available, or other city property converted to lab space. Space for current operations should be in the range of 2,000 to 2,500 square feet.

2.1.2.5 Quality Management -BCPCL

The laboratory reports 1 FTE for the duties of quality manager, 7.5 FTE for file review, 0.2 FTE for proficiency test program management, and 4.5 FTE for quality system maintenance and \$1,822 for the purchase of proficiency samples.

With the size of this laboratory, 2 staff positions should be dedicated to quality management, with support of the supervisors and other staff performing audits, file review, and quality system maintenance.

2.1.3 Baltimore County Police Forensic Services Section (BCPFSS)

The BCPFSS performs drug, biological screening / DNA, firearms & toolmark, firearms database, latent fingerprint comparison and database, shoe & tire track, and computer evidence testing for the County of Baltimore. The lab provides DNA results that are compliant with the National QA Standards for Convicted Offender DNA Index System (CODIS). Trace evidence and fire debris are outsourced to MSPCL, ATF and FBI in cases where a suspect has been identified. BCPFSS maintains ASCLD/LAB accreditation in good standing, and is aiming to add the discipline of crime scene analysis in 2002.

2.1.3.1 Physical plant - BCPFSS

With renovation of newly acquired areas the laboratory will have sufficient space. However, the firearms section is separated by several floors, reducing communications with that unit. Some of the work areas are cramped. The physical space does not have a major impact on casework productivity.

The laboratory uses a LIMS ("The BEAST"), which provides the laboratory with evidence tracking and some report writing functions. Manual systems are also in place to provide analyst performance monitoring, case turnaround time, and case management.

Laboratory safety equipment, supplies, and training are in excellent condition.

Existing capital equipment is in good condition and is sufficient for current workloads. The laboratory budget for equipment replacement is inadequate. However, funds from asset seizures and block grants have been sufficient to maintain an excellent inventory of equipment and instrumentation.

The physical plant is sufficient for current needs. Existing areas can be redesigned for efficient use. This will become essential if the laboratory grows in staffing or service provision. Growth would also require additional capital equipment. Efficiency can be improved by fully implementing the LIMS to reduce the need for manual systems for management information.

2.1.3.2 Work volume conditions - BCPFSS

Staff numbers are low, especially in drug chemistry, through staff losses. Two of five drug analysts' positions and two of five biology positions were vacant when the assessors visited June 27, 2001. It was noted that salaries were to blame for trained staff members taking other jobs in nearby crime laboratories. Lab-wide there were 9 vacant positions. In the area of latent fingerprints, three analysts handle all comparisons and MAFIS work. A fourth analyst would allow this unit to keep up with the high number of requests. Until training is completed in DNA, only 4 to 5 cases a month can be reported.

time demands. Although the laboratory has done a good job working with current resources, only one item per case is being analyzed.

Due to low staff numbers, backlogs and slow turnaround is common in biology screening / trace evidence, latent prints, and the mobile unit. Unfilled positions in latent prints have caused an unmanageable backlog.

The laboratory budget should be increased to cover all staff deficiencies, and the laboratory management should develop plans to improve work volume conditions. Cooperative efforts and prioritization of services should be employed.

With the high violent crime rate in the City of Baltimore, two analysts cannot keep up with the critical area of DNA Analysis. Lab staff have attempted to maintain both casework and validation responsibilities, causing neither to be performed as efficiently as possible.

The addition of a permanent technician leader and two additional staff to analyze DNA are required to improve productivity of the unit. Coordinated efforts in DNA validation and analysis with other laboratories must be sought. (See statewide recommendations).

2.1.2.3 Conformance with standards - BCPCL

The laboratory has taken the first steps toward meeting the program requirements of ASCLD/LAB. Appointment of a full time quality manager was the first step. The laboratory has numerous gaps in its quality system, which will take manpower and time to correct. Examples of deficiencies include current training programs, written technical procedures, evidence control, safety programs, employee development program, auditing program and internal communications. Unsealed evidence was noted in the latent print area.

ABC certifies one staff member and the International Association for Identification (IAI) certifies four staff.

Cooperative programs with other laboratories will assist the laboratory in the difficult task of meeting ASCLD/LAB program requirements. Additionally, supervisory personnel and the quality committee members must devote significant time to this project.

2.1.2.4 Training - BCPCL

The current budget for training has not changed since 1980. Workload demands and poor support for training within the Department also hinder training. There is no dedicated training system or coordinator within the laboratory. Personnel are granted time off to attend training, however, the training is not paid for by the laboratory, unless grant money is available.

The laboratory should aim for \$1,000 to \$1,500 per scientific staff member in its training budget. A training program, with an identified coordinator(s) should be established within the laboratory. The amount spent could be lowered with a coordinated training effort at the statewide level. It will be necessary for the funding level to increase if the BCPCL is to offer DNA testing in compliance with the National QA Standards.

2.1.2 Baltimore City Police Crime Laboratory – (BCPCL)

The BCPCL performs drug, serological, firearms & toolmark, firearms database, trace evidence, fire debris, latent fingerprint processing, comparison and database, explosive residue, document, and shoe & tire track testing for the City of Baltimore. The lab is in the final stages of DNA analysis implementation. Cases needing DNA analysis are outsourced to a private laboratory and the MSP-Pikesville Crime Laboratory.

2.1.2.1 Physical plant - BCPCL

The laboratory resides in two floors of the Baltimore Police Department, having been renovated recently. The space and design are sufficient for laboratory operations. Under the current work schedule the physical space is not a major impact on laboratory casework productivity. It should be noted that shifts have had to be employed to meet rapid drug analysis requirements. Currently space is sufficient for all drug chemists, however, there is no space for additional staff.

The vehicle processing area lacks proper ventilation, cleaning, and electrical supply.

Certain evidence is collected by Mobile Unit personnel at district and headquarters locations, for example trace evidence from suspects. Housekeeping and building maintenance at such City-owned facilities is not under the control of the laboratory, therefore, the quality of evidence collected under theses conditions may be compromised.

Laboratory safety equipment and supplies are in place in the observed areas of the laboratory.

Existing capital equipment ranges from state of the art to obsolete. Examples of old or obsolete items are microscopes, cameras, and crime scene investigative equipment. The laboratory budget for equipment replacement is inadequate.

Although the Evidence Control Unit is not part of the laboratory, its physical plant is in need of major upgrades. Preservation of evidence prior to and after laboratory analysis is essential. Steps should be taken to ensure evidence integrity regardless of its collection location.

An integrated laboratory computer system and LIMS will improve productivity and enhance the quality system. The recent implementation of Starfruit LIMS in the Drug Analysis Unit addressed the productivity issues noted during the site visit. Inclusion of other analytical units will streamline evidence handling and reporting functions.

A thorough review of capital equipment, with a priority and replacement schedule as the review goal is in order. Regardless of funding sources (operating budget or grants), equipment must be replaced in a planned, continuous manner. An additional thermal cycler should be added in the DNA unit to reduce waiting times.

Any growth in staffing or service provision will necessitate additional space and equipment.

2.1.2.2 Work volume conditions - BCPCL

Under external pressures for rapid turnaround, the drug analysis unit has developed a streamlined triage analysis scheme, utilizing sampling and single item analysis, along with dual shifts, to meet the rigorous

2.1.1.2 Work volume conditions - AAPCL

Backlogged cases for drug analysis have been reduced by addition of a fourth analyst, and turnaround times in this area are acceptable.

Although AAPCL has a minimal backlog, reevaluating analysis schemes can increase productivity employed in drug analysis. The laboratory has a policy to perform mass spectral analysis on all suspected marijuana cases, which is a more sensitive and selective test than the Modified Duquenois-Levine (D-L) color test. The lab should consider dropping the D-L in cases where it does not aid the identification of marijuana. This would speed analysis, reduce costs, and reduce the chemical exposure of staff.

The extended validation time for DNA analysis has dramatically reduced laboratory productivity in the area of serology, causing delays and backlogs in violent crime investigations. Lab staff have attempted to maintain both casework and validation responsibilities, causing neither to be performed in a timely manner.

Coordinated efforts in DNA validation and analysis with other laboratories must be sought. (See statewide recommendations).

The CDS Evidence Officer handles about 3000 cases without support or backup. The lab has 0.2 FTE for clerical tasks, in the form of a volunteer.

The lab should add an administrative position to provide support to the lab and to the CDS Evidence Officer.

2.1.1.3 Conformance with standards - AAPCL

As mentioned previously, AAPCL has demonstrated conformance with program requirements of ASCLD/LAB. The American Board of Criminalistics (ABC), the applicable personal certification body, does not currently certify laboratory staff members. The laboratory manager is a Diplomate of the ABC.

2.1.1.4 Training - AAPCL

The current budget of \$2,900 is below the funding level necessary for 7 forensic scientists.

The laboratory should aim for \$1,000 to \$1,500 per scientific staff member in its training budget. This amount may be lowered with a coordinated training effort at the statewide level. It will be necessary for the funding level to increase if the AAPCL is to offer DNA testing in compliance with the National QA Standards.

2.1.1.5 Quality Management - AAPCL

The laboratory commits 1.7 Full Time Equivalent (FTE) for the duties of quality management, file review, and proficiency test program management and \$3,000 for the purchase of proficiency samples.

This is an appropriate level of commitment to quality management for a laboratory of this size. However, external service providers such as the Evidence Management unit and private laboratories are not guided by the quality system of AAPCL. Therefore, the service is of an unknown quality.

2 Report Findings

2.1 Laboratory Findings

The outline for each laboratory is based upon the State of Maryland Request for Proposals, solicitation W00B1200079. Physical plant, work volume conditions, conformance with standards, and training are treated here for each laboratory. Future program developments are addressed in the recommendations section.

Findings for each laboratory are based on site visits, stakeholder feedback, and laboratory surveys. The Findings for each laboratory are presented below in the format:

- Area assessed in bold italic type
- Finding in regular type
- Comment on the Finding in italic type

2.1.1 Anne Arundel County Police Crime Laboratory (AAPCL)

The AAPCL performs drug and serological testing for the County of Anne Arundel. The lab is working towards DNA analysis implementation. Cases needing DNA analysis are outsourced to a private laboratory. ASCLD/LAB accredited AAPCL in the summer of 2001. Other services are provided by the Anne Arundel County Police Department Evidence Collection Unit and Identification Section (blood spatter interpretation, shoe & tire track comparison, crime scene analysis, and latent fingerprint development & comparison) or through outside private laboratories or federal agencies (trace evidence and questioned documents). Due to trace evidence backlogs at the Maryland State Police Crime Lab – Pikesville, the Evidence Collection Unit will not send evidence of this type there for analysis.

2.1.1.1 Physical plant - AAPCL

The laboratory has made efficient use of space, however, has no room for expansion of personnel or additional services. Air conditioning deficiencies are in the process of being corrected by the county, as humidity in the laboratory is not controlled. Separation of the laboratory from the primary evidence contributors is not ideal, but workable. The physical space does not have a major impact on casework productivity.

The laboratory uses a Laboratory Information Management System (LIMS), "The BEAST", as does the Evidence Collection Unit (ECU). However, data between the two areas is not completely shared. Updates to the ECU data are not readily available to the lab.

Laboratory safety equipment, supplies, and training are in excellent condition.

Existing capital equipment is in good condition and is sufficient for current workloads. The laboratory budget for equipment replacement is adequate for current needs. Future budgets will need to be increased in years where older equipment is scheduled for replacement.

The physical plant is sufficient for current needs. Any growth in staffing or service provision will necessitate additional space and equipment. Efficiency can be improved by increased data sharing between the Evidence Collection Unit and AAPCL.

The laboratory should aim for \$1,000 to \$1,500 per scientific staff member in its training budget. Based on the 30 testifying staff members, the amount budgeted is adequate. However, when grant funding is not available, the county must increase its portion. This amount can be lowered with a coordinated training effort at the statewide level.

2.1.11.5 Quality Management - PGPCL

The laboratory reports 2 FTEs for the duties of quality management, file review, and proficiency test program management and \$2,100 for the purchase of proficiency samples.

This level of quality support is inadequate for a lab the size of PGPCL. With the size of this laboratory, 1.5 staff positions should be dedicated to quality management, with support of the supervisors and other staff performing audits, file review, and quality system maintenance. Additional short-term resources, such as external assistance, should be used to speed the implementation of a quality system that meets the industry requirements.

2.2 Statewide findings

2.2.1 Physical plant

All the laboratories are in need of either additional space or renovation of existing space to improve productivity. City, County or State owned buildings with few internal walls could be renovated at a lower cost and occupied faster than new construction.

2.2.2 Work volume conditions

Impediments to productivity range from low staff numbers in certain units to poorly managed resources in others. Status quo in staffing and analysis has led to inefficiencies in some testing areas. It is imperative that testing schemes and staffing be reviewed to identify areas for improvement and to eliminate redundant analyses.

2.2.3 Conformance with standards

Six of the eleven forensic service providers are currently accredited. The other five are in various stages of preparation for accreditation. The remaining five have work ahead of them to become accredited. A dedicated, focused plan must be established and implemented to complete this necessary task. Fewer than 20 individuals are certified within the laboratories surveyed.

2.2.4 Training

As in many states, Maryland's laboratory training budgets are the first to be reduced when funding is limited. While some areas, such as DNA, have sufficient training funds, other disciplines do not. Efficiencies in training can be gained by combined efforts.

2.2.5 Quality Management

The majority of laboratories lack full-time quality management positions, or report too few FTEs

dedicated to this critical function.

2.2.6 Service provision

2.2.6.1 DNA

The MSPCL-P has been a CODIS member and linked to the National DNA Index System (NDIS) for several years, using Restriction Fragment Length Polymorphism (RFLP) DNA analysis until January 2000. The MSPCL-P has since been uploading Short Tandem Repeat (STR) DNA case data from private laboratories and convicted offender samples from the Maryland Database.

There are approximately 24 DNA analysts spread around the various laboratories in Maryland, yet fewer than 20 cases a month are analyzed and reported. This is due in part to the lack of a focused, cooperative effort to validate and implement DNA analysis in the State of Maryland. Several laboratories receive minimal caseloads and are attempting to provide DNA testing. Efficiency cannot be attained without a collaborative effort. As of June, there was no Memorandum of Understanding (MoU) in place between MSPCL and any state users for CODIS, due to the lack of implemented DNA programs or installed CODIS equipment. Plans are in place to establish such MoU. Operating and maintaining a DNA unit is no small endeavor. Laboratories need to evaluate their ability to resource their DNA units to the level required to maintain standards of operation.

2.2.6.2 Trace Evidence

Unlike DNA, there is a lack of analysts available to perform trace evidence testing. Outside the BCPCL, there are only three full-time analysts (MSPCL-P), and one part-time contractor (MPCL) performing this service. In many cases trace evidence goes untested. One laboratory (BCPFSS) is currently considering the addition of some form of trace evidence analysis.

2.2.6.3 Controlled Substances

Capacity is adequate for the caseload, with the exception of BCPCL, where court requirements do not allow for analysis of all items based on current staffing, space, and equipment. Sufficient staff levels and equipment are available in the other Maryland laboratories. A streamlined arrangement for the provision of expert testimony would increase the time the analysts are working case samples.

2.2.6.4 Questioned Documents

Currently 2 laboratories provide this service. At the time of the site visits, there was not enough staff to perform onsite peer review. It is not known how much of this work goes untested in Maryland.

2.2.6.5 Firearms and NIBIN

There are sufficient firearms examiner positions within Maryland to keep up with the current workloads. With the national shortage of trained examiners, advanced planning and employee retention are necessary to keep the positions filled.

2.2.6.6 Latent Prints and AFIS

Two Automated Fingerprint Identification Systems (AFIS) exist in Maryland. The Printrak® system is used in the Regional AFIS (RAFIS), which serves the Metropolitan DC area. The Morpho® system is used by the Maryland AFIS (MAFIS). Prince George's and Montgomery County use both the RAFIS and

MAFIS system. There are no MAFIS terminals on the Eastern Shore. Within MAFIS, fingerprint cards are not digitized, and Live Scan technology is not in place. When a fingerprint examiner enters an unknown print into MAFIS and gets a "hit" the card must be requested and sent to the examiner for confirmation. The wait to receive the card can be up to four weeks. Capacity and availability of analysis ranges from poor to very good.

2.2.6.7 Fire Debris

Fire debris is tested in two laboratories, with both labs able to keep up with the incoming cases. At least two laboratories are considering the addition of this service, which seems unnecessary at this time.

2.2.6.8 Blood Alcohol Content

The MSPCL-P provides this service exclusively and has a good system in place to keep up with the submitted samples in a timely fashion. In contrast to the timely analytical service, one law enforcement stakeholder reported trouble in receiving reports in a timely fashion. This contrast suggests that a streamlined communication system for the reporting of all forensic results be designed and implemented.

2.2.6.9 Crime Scene

In general, this service is done well. There is evidence of effective statewide cooperation.

2.2.6.10 Digital Evidence

Limited, but competent services are available in this emerging field. Growth should be planned and managed. This area is a prime example of where a collaborative effort is called for. For example, standardized search warrants, inventory forms, procedures, training, competency testing, etc. would form the basis for true statewide provision of digital evidence analysis.

2.2.7 Communications

2.2.7.1 Intra-laboratory communications

As in many other states, sections within the crime laboratories in Maryland have become segmented over time. Vital communications break down in a segmented environment. For example, in one lab communication between DNA analysts and biology evidence screeners is poor and causes reduced productivity. In another laboratory, safety programs and quality management are redundant in the various sections, causing inefficiency.

2.2.7.2 Inter-laboratory communications

Lab to lab communications in Maryland needs to be improved. Although various individuals have good relationships, there is no formal communications network that allows collaborative efforts. For example, the slow implementation and the variety of analysis platforms for DNA have developed because of poor communications.

2.2.7.3 Laboratory – stakeholder communications

Fifty-five percent of law enforcement stakeholders rated the laboratories as other than "excellent" when asked to rate "Understands my needs and seeks regular feedback on performance." Forty-seven percent of General stakeholders also rated the labs as other than "excellent."

Several agencies stated that there was a backlog of cases involving fire debris. However, this was not found to be the case during a review of backlogs and site visits. This is an example of poor communication with stakeholders.

Section 3 Recommendations

3.1 Overview

In this section recommended actions are listed, some of which are short term, others long term. Short term is defined as matters needing immediate attention because they impact quality or efficiency and can be addressed without delay. Long term is defined as systematic and infrastructure issues, such as maintaining and improving mature systems. Within each topic, the Governor's Task Force must define where the separation of short and long term occurs.

3.2 Cooperative programs

Forensic science is neither easy nor inexpensive. Numerous laboratories providing service in a disjointed manner makes the service more costly and more difficult than necessary. Without coordination, resources are wasted and justice is delayed. To establish and maintain focused forensic science service, the Governor's Task force should remain in place and be empowered with the authority necessary to carry out the recommendations that follow.

3.2.1 DNA analysis

The analysis of DNA is expensive and high profile work. Maryland is missing out on good investigative information by not having an effective DNA analysis program. In Virginia, the Division of Forensic Services had 178 cold hits in 2000, and based on current trends, will have 200 in 2001⁷. Indiana State Police reports 51 similar hits in the past year, and an 18% hit rate – that is nearly 1 in 5 cases results in a hit against their database⁸. A fully functioning DNA program in Maryland should yield similar results.

The laboratories in Maryland should focus their efforts on the 13 core loci of CODIS. Nothing new should be contemplated until all systems are stable and running well and a State DNA Index System (SDIS) is in place and cold hits are being made on a routine basis. To this end, a working group should be formed under the guidance of the Governor's Task Force to realize the potential for service delivery. The working group should give clear direction to each laboratory to guide them through the steps necessary to produce valid casework. It should also evaluate progress and report their findings to the Task Force. The working groups should determine instrumental platforms, DNA reagents, testing protocols, and training programs. The group should also State and federal funds should be used to standardize the equipment.

Once the laboratories are all operational and contributing to the SDIS, the working group should be converted into an advisory board of the Task Force, at which point it would develop a 5-year plan with priorities, action plans, and deadlines to maintain growth and direction for the Maryland DNA program.

3.2.2 Trace evidence analysis

In section 2.6.2.2 the current state of trace evidence was outlined. The field of trace evidence is very specialized and the number of trace evidence cases is limited. Additionally, analytical resources are costly. Therefore, future provision of trace evidence services must be well planned so that economies of scale are realized and interagency collaboration and cooperation achieved.

No one can force a solution in this area; however, recommendations can be made on how trace evidence analysis must be resourced. Full-fledged trace evidence analysis will require:

- Sufficient and properly designed space
- A full compliment of instrumentation and equipment
- Training programs and qualified trainers
- Technical procedures
- Quality assurance and quality control
- Sufficient number of personnel

To do this properly will be a costly endeavor. To this end, an oversight committee should be formed prior to any additional resource allocation for trace evidence analysis. This committee should be empowered to oversee the requirements listed above. The committee should establish mechanisms for funding and casework prioritization in areas where collaborative ventures are made. Task Force funds should be restricted to laboratories that follow the committee's requirements. The end goal must be the provision of the timely necessary trace evidence analysis to all Maryland.

3.2.3 Document examination

The field of questioned document examination is highly specialized with a very limited number of trained examiners. For this reason, and considering the scope of casework in Maryland, document examination should be performed in one lab, staffed with at least 3 analysts. All stakeholders in Maryland would submit items to that laboratory, which would be designed to operate in a timely manner. A minimum of three analysts is necessary to keep up with the work and to maintain a quality assurance system, especially in the area of technical case review.

3.2.4 AFIS and latent prints

An AFIS committee should be formed to implement a true statewide AFIS. In areas where RAFIS is used, an automated system to search and upload unknown prints to MAFIS should be established. Areas like the Eastern Shore should be evaluated for placement of a MAFIS terminal. Livescan or other digitization of reference fingerprints should be added to MAFIS to speed analysis and aid investigators. Staffing levels in all laboratories should be examined and more staff resources applied where large backlogs exist. The power of a statewide AFIS is not fully realized when samples wait for analysis.

3.2.5 NIBIN (Drugfire and IBIS)

Maryland has a successful history of participation in a regional firearms image database program. The National Integrated Ballistics Information Network (NIBIN) has decided to switch all crime laboratories to the Integrated Ballistics Identification System (IBIS). A working group should be established to plan the transition from Drugfire to IBIS, set common rules for entry of existing case samples, and allow for cross-jurisdictional entry to balance casework. Four laboratories will have IBIS functionality – Baltimore City, Baltimore County, Maryland State Police, and Prince George's County. Properly planned and implemented, IBIS will provide quick, investigative information needed to solve violent crimes.

3.2.6 Training

As the technical nature of forensic science services increases, basic and advanced training, on a continuing basis, must be provided. The current training and equipment subcommittee of the Governor's Task Force should be made permanent. This subcommittee should provide statewide training

opportunities and coordination. The sum of the laboratories training budgets was reported as \$195,840. By pooling these funds, and supplementing them to a total of \$425,000 all lab analysts will have access to adequate training opportunities. This can be done either as a joint training effort, operated by the Task Force, with each lab contributing its pro-rata share, or by the Task Force supplementing the training budgets of each laboratory. In either event, coordination of training must occur.

Following is a table demonstrating each laboratory's training budgets relative to the number of staff, with a target amount. The target is based on \$1,500 per staff member a year. Staff includes testifying analysts, technical support personnel, and supervisors.

| Lab | Number of Staff | Total Training Budget | Training amount / staff | Training Budget Target |
|------------------|--------------------|--------------------------|-------------------------|------------------------|
| AAPCL | 8.2 | \$2,900 | \$354 | \$12,300 |
| BCPCL | 81 | 1,000 | 12 | 121,500 |
| BCPFSS | 52 | 23,900 | 460 | 78,000 |
| HPCL | 2 | 1,000 | 500 | 3,000 |
| MSPCL- all labs | 78 | 107,090 | 1,373 | 117,000 |
| MPCL | 7.67 | 13,792 | 1,798 | 11,505 |
| OCPCL | 1 | 1,500 | 1,500 | 1,500 |
| OCME – Tox. only | 10 | 1,000 | 100 | 15,000 |
| PGPCL | 45 | 41,500 | 922 | 67,500 |
| Totals | 284.9 | \$195,840 | \$755 | \$427,305 |

3.2.7 Communications

Several stakeholders asked for common submittal and report forms from the laboratories. One of the top two recommendations from the Maryland Forum was to utilize the power of computer networks to improve communications between labs and with stakeholders. Therefore, the Governor's Task Force should oversee a project to implement Laboratory Information Management Systems (LIMS) in each laboratory that would allow for electronic distribution of results as soon as cases are completed in any of the laboratories. If statutes or regulations must be amended, the Task Force should work with the appropriate governing bodies to allow for such distribution. By creating systems with similar capabilities, managed by professional database administrators, the State of Maryland will realize a saving of both time and money for all laboratories. The laboratories would also be more responsive to the needs of stakeholders. As mentioned previously, a statewide effort to streamline testimony provision should be undertaken by the Task Force.

3.2.8 Quality assurance

The subcommittee of the Governor's Task Force should continue its work harmonizing the Quality Assurance (QA) systems throughout Maryland, making certain to include the Office of Chief Medical Examiner. QA standards of operations - doing the right things in the right way - need not be reinvented at each laboratory. QA systems should support analysts through common platforms and consensus approaches. These consensus approaches will add an important component of quality - timeliness. The cooperative effort will have the added benefit of making the laboratories more responsive to stakeholder needs.

3.2.9 Staffing and salaries

Besides communications, the other top recommendation of the Maryland Forum was staffing and salary rationalization. Services at each laboratory should be evaluated for need. There is a critical mass of work that must be present to warrant the devotion of resources. When there is less work in a field than is required to justify the service, resources are wasted. The Governor's Task Force should critically evaluate service provision and recommend service changes where efficiencies can be gained. A good example of this is the combined efforts of Montgomery and Prince George's Counties laboratories for the provision of latent fingerprints, AFIS, firearms & toolmarks, and firearms databasing services.

A similar review and harmonization of salaries should be performed as well. The turnover of staff at the laboratories is detrimental to stability, quality and productivity. When personnel leave a laboratory, several negative things occur. The position remains unfilled while a bureaucratic process seeks replacements. Once that process yields a qualified candidate, basic training must take place. This can take from 4 weeks to 3 years, depending on the candidate's education and experience level. During this training period, the person in the newly filled position is not contributing to casework productivity, and in fact is can be a drain on productivity. This drain occurs because an experienced analyst, acting as the training coordinator, loses time normally spent working cases. The cost of training an inexperienced analyst ranges from \$40,000 to \$120,000 when all costs are taken into account. The harmonization of salaries will take time and much effort, but the costs of training obviously make the effort worthwhile and essential.

3.2.10 Certification

The certification of staff members is a cost effective method to improve and document the quality of personnel. The benefits of certification include increased professionalism, participation in professional organizations, and assurance that personnel are maintaining a current knowledge base in their fields of analysis. State funding should be made available to each laboratory to offset the cost of obtaining and maintaining certification of all staff. The Task Force should consider pooled training to assist employees to prepare of certification exams. The laboratories should allow time for employees to prepare for the examinations. Laboratories with insufficient staffing to allow the time needed should add personnel, since training and maintenance of expertise is part of a scientific position.

3.3 Other recommendations

3.3.1 Ocean City Police Crime Laboratory

This laboratory is in need of a large infusion of capital equipment, training, and quality assurance measures. The caseload for this lab (about 700 cases a year of suspected controlled substances), while vital to the police department, does not warrant the expenses used to keep it operational. Because the City must employ seasonal officers to handle the summer population base, quick analysis is critical to the Police Department and to the Court. For these reasons, current plans to place an additional analyst in the Berlin laboratory of the Maryland State Police should be expedited. All controlled substance cases from Ocean City should then be submitted to the Berlin laboratory. By working out a delivery schedule and keeping the turnaround of casework to less than two weeks, the Ocean City Police will receive improved service and the city government will save about \$75,000 a year that can be used for other law enforcement needs. In addition to quick results, the testing will be performed in an ASCLD/LAB accredited laboratory. Discussions of this recommendation with Chief of Police Massey and Lab Director Dr. Louis Portis were positive and they are in favor of these changes.

3.3.2 Office of Chief Medical Examiner

This agency is not normally associated with crime laboratories, however, performs two vital forensic services for the State of Maryland. The recommendations found within 2.1.10 should be followed. By continuing to participate in Task Force activities, the OCME will improve and be better integrated with the other laboratories in Maryland.

3.3.3 Facilities

As noted in the statewide findings section, there is a need for increased facility size in most laboratories in Maryland. The table below illustrates this need. The targeted square footage is based on 750 square feet per current employee. The figure of 750 square feet is an average arrived at by the NFSTC after review of over 150 crime laboratories throughout the United States. The target includes space for laboratory, office, and support areas, but does not include specialty areas such as automobile search garages, firing ranges, and specialized training rooms.

When an agency proceeds to renovation or construction, projected staff sizes should be used. That projection should be based on additional staff to provide for growth in services currently offered as well as services that may be added over the next 10 to 15 years. Also, specialized areas, such as morgues, will require additional space.

| Lab | Number of Staff | Square feet | Square feet per Staff | Space Target (ft.²) |
|---------|--------------------|-------------|-----------------------|---------------------|
| AAPCL | 8.2 | 3,600 | 439 | 6,150 |
| BCPCL | 61 | 35,665 | 585 | 45,750 |
| BCPFSS | 52 | 22,000 | 327 | 39,000 |
| HPCL | 2 | 750 | 375 | 1,500 |
| MSPCL-B | 4 | 752 | 188 | 3,000 |
| MSPCL-H | 5 | 650 | 130 | 3,750 |
| MSPCL-P | 69 | 25,000 | 362 | 51,750 |
| MPCL | 7.67 | 2,226 | 290 | 5,753 |
| OCPCL | 1 | 473 | 473 | 750 |
| OCME | 77 | 36,000 | 467 | 57,750 |
| PGPCL | 45 | 11,000 | 244 | 33,750 |

Low "square feet per staff" numbers for agencies providing crime scene service and other shift work can be misleading, since all personnel are not present at all hours.

3.3.4 Other forensic service providers

As listed in Appendix 4.9, there are several law enforcement agencies in Maryland that provide forensic science services. Of concern are those performing marijuana and other drug analysis without the support of a quality assurance system, and no interaction with the state's other crime laboratories. The Maryland Department of Health and Mental Hygiene certification process for drug chemists and marijuana analysts should be reviewed by the Task Force to determine if the requirements safeguard the stakeholder needs.

Additionally, the other services provided should be reviewed by the Task Force to determine if they are being performed under a quality system.

Section 4 Appendix

4.1 Vitae of investigators

4.1.1 William J Tilstone

PERSONAL

Born March 27, 1943, Ayr, Scotland. British Citizen, US Green Card.

EDUCATION

University of Glasgow, 1961 - 1965; B Sc 1st Class Honors University of Glasgow, 1965 - 1968; PhD "Studies on metabolic changes and trauma" Royal College of Pathologists, 1976; Member by examination of published works. (Fellow, 1986)

APPOINTMENTS

Lecturer in Pathological Biochemistry, University of Glasgow, 1968 - 1972

Lecturer in Forensic Science, University of Strathclyde, 1972 - 1979

Professor and Head, Forensic Science, University of Strathclyde, 1979 - 1984

Director of Forensic Science, Government of South Australia, 1984 - 1996

Executive Director, National Forensic Science Technology Center, 1996 -

Courtesy Professor in Forensic Science, University of Central Florida, 1996 -

RELEVANT EXPERIENCE

Consultant, Forensic Serology, Public Prosecutor for Paisley and Greenock Districts, Glasgow, 1973 - 1984

Member of Council Forensic Science Society 1976 - 79

Editor Journal of the Forensic Science Society 1979 - 86

Vice President International Association of Forensic Science 1981 - 84

Advisor on Clinical Pharmacokinetics, Glasgow Area Health Board 1982 - 84

Grant reviewer ARC Australia, 1992 - 2000

Consultant in Forensic Science, Government of Malta, 1982 - 84

Consultant in Forensic Science, Government of Bahrain, 1993

Member State Government Review of Forensic Science Services, South Australia, 1984 - 85

Member State Government Forensic Science Advisory Committee, South Australia, 1986 - 1996

President International Association of Forensic Science 1987 - 90

Member Executive Council National Association of Testing Authorities of Australia (NATA) 1989 - 1996

Member Board of Control National Institute of Forensic Science, Australia 1990 - 96

Member Delegate Assembly ASCLD-Laboratory Accreditation Board (first non-US member) 1990 - present

Lead Auditor Triennial Statutory Review of SAMCOR (South Australian Government) 1990 and 1993

Consultant, Forensic Toxicology, Attorney-General's Department, State of Victoria, 1991

Member Board of Directors American Society of Crime Laboratory Directors (ASCLD) 1992 - 95 (first non-North American so honored)

Accreditation inspector, ASCLD/LAB, 1992 - 1996

Advisor, Government Agency Review Group, South Australia, 1992

Member South Australian State Government Change Management Directorate - State Services, 1993

Member Registration Advisory Committee for Forensic Science, NATA, 1993 - 96

Acting Director and Auditor, Office of Fair Trading, Government of South Australia 1993

Member State Government Senior Executive Development Reference Group, South Australia, 1995 - 96

Member Board, Human Identification Trades Association, 1996 -

4.1.2 Kevin L. Lothridge

EDUCATION

Master of Science in Management National Louis University, December 1992.

Bachelor of Science in Forensic Science. Eastern Kentucky University, May 1984.

PROFESSIONAL EXPERIENCE

| 1984 | Forensic Chemist, Pinellas County Sheriff's Department |
|------|---|
| 1986 | Forensic Chemist, Pinellas County Forensic Laboratory |
| 1988 | Chief Forensic Chemist, Pinellas County Forensic Laboratory |
| 1995 | Forensic Laboratory Director, Pinellas County Forensic Laboratory |
| 1998 | Deputy Director, National Forensic Science |
| | Technology Center |

TEACHING EXPERIENCE

1984-present Adjunct Faculty St. Petersburg Junior College Public

Safety Institute and Multijurisdictional Drug Task

Force, Forensic Aspects of Drugs of Abuse

(This training has been given over 30 times since 1984)

PROFESSIONAL SERVICE

Midwestern Association of Forensic Scientists
Southern Association of Forensic Scientists
American Academy of Forensic Sciences, Fellow
American Chemical Society
American Board of Criminalistics, Fellow
American Society of Crime Laboratory Directors, President 1996-97
Canine Accelerant Detection Association, Board of Directors 1992-1996

COMMUNITY SERVICE

| 1984-present | Speaker on behalf of The Pinellas County Forens | | | |
|--------------|--|--|--|--|
| | Laboratory to local, national and international groups | | | |

1984-present Guest Speaker/Career Day participant at local schools
1990-present Member of Pinellas County Drug Free Schools Care Council

RESEARCH PUBLICATIONS

"The Use of Activated Charcoal Strips for Fire Debris Extractions by Passive Diffusion. Part 1: The Effects of Time, Temperature, Strip Size, and Sample Concentration," Journal of Forensic Sciences, JFSCA, Vol. 41, No. 3, May, 1996, pp. 361-370.

"An Evaluation of 42 Accelerant Detection Canine Teams,"
Journal of Forensic Sciences, JFSCA, Vol. 40, No. 4, July, 1995, pp. 561-564.

PRESENTATIONS, WORKSHOPS, AND OTHER PUBLICATIONS

August 1996 The Internet for Forensic Scientists, (Workshop) Co-Chair

International Association of Forensic Scientists meeting,

Tokyo, JP

May 1996 The Internet for Forensic Scientists, (Workshop) Co-Chair

Southern Association of Forensic Scientists meeting,

Auburn, AL

April 1996 Electronic Communications for Forensic Science,

(Invited Lecture) Law Enforcement & Corrections Technology

Conf., Los Angeles, CA

February 1996 The Internet for Forensic Scientists, (Workshop) Co-Chair

American Academy of Forensic Sciences meeting,

Nashville, TN

January 1996 Statistics for Forensic Scientists (Workshop) Co-Chair, Hosted

by the National Forensic Science Technology Center, St.

Petersburg, FL

September 1995The Internet for Crime Laboratory Directors (Workshop),

Annual ASCLD meeting, Quantico, Va.

August 1995 Use of the Internet to find Information useful in Fire

Investigation. (Invited Poster) International Symposium on

the Forensic Aspects of Fire Investigation, Sponsored by the

FBI, Washington, D.C.

March 1995 Chemical Destructive Devices, (Invited Lecture) PARCO

Training Conference, SPJC Allstate Center, St. Petersburg, FL

February 1995 The Internet for Forensic Scientists, (Workshop) Co-Chair

American Academy of Forensic Sciences meeting, Seattle, WA

September 1994Managing a Forensic Laboratory,

(Invited Lecture) American Society of Crime Laboratory

Directors Meeting, FBI Academy, Quantico, VA

September 1994Proper Maintenance of Accelerant Detection Canines,

(Juried Paper Award Winner)

Southern Association of Forensic Scientists, Orlando, FL

September 1994Internet for Forensic Scientists, (Workshop) Co-Chairman

Southern Association of Forensic Scientists, Orlando, FL

September 1993Computer Systems Used By The Pinellas Co. Forensic

Laboratory, (Invited Lecture) American Society of Crime

Laboratory Directors Meeting, FBI Academy, Quantico, VA

April 1993

Fire Debris Analysis. (Training Course) Co-Chairman

Continuing Education, Crime Lab Council, St. Petersburg, FL

November 1992Laboratory Role in Fire Investigation, (Invited Lecture)

Pinellas County State Attorney's Office, Clearwater, FL

September 1992Laboratory Role in Fire Investigation, (Invited Lecture)

South Carolina IAAI Meeting, Columbia, SC

COURTROOM EXPERIENCE

1984-present Controlled Substances Expert Testimony (100 +)

1990-present Trace Evidence Expert Testimony

(Fire Debris, 6 times, Accelerant Detection Canines, 3 times)

4.1.3 David M. Epstein

EDUCATION

April 1982

University of Central Florida, Orlando; Bachelor of Science, Forensic Science; Minor,

Chemistry

EXPERIENCE

1982 - 1991:

Forensic Chemist, Acadiana Criminalistics Laboratory

1991 - 2000:

Director, Acadiana Criminalistics Laboratory

2000 - present:

Director of Scientific Services, NFSTC

PROFESSIONAL ORGANIZATIONS

American Academy of Forensic Sciences

American Society for Testing and Materials (ASTM), Committee E-30 on Forensic Sciences, Fire Debris Task Group

American Society of Crime Laboratory Directors, Treasurer 1995 - 1998, Electronic Communications

Committee Chair & Web Site Manager, 1998 - present

California Association of Criminalists

Louisiana Association of Forensic Scientists. Former President

Louisiana Association of Scientific Crime Investigators, Former President

Louisiana Board of Crime Laboratory Directors and Administrators, Vice President, 1994 - present

Southern Association of Forensic Scientists

Southwestern Association of Forensic Scientists

CERTIFICATION

Diplomate, American Board of Criminalistics, Certificate 549

Current at-large member of Board of Directors (ASCLD nominee)

Fire Debris Task Group, SAFS

CONTINUING EDUCATION

Achieving Excellence in Supervision, LSU Public Management

Program, 3.6 CEUs

Advanced AmpFISTRä & ABI Prismä 310 Genetic Analyzer

Advanced Interpretation of Mass Spectra, SWAFS

Arson Accelerant Detection, ATF

Association of Firearm and Tool Mark Examiners

Annual Training Seminars - 1982, 1983, 1991 & 1994

Basic Drug Chemistry, LABCLDA

Basic Serology, Elizabeth Quarles, SAFS

Blood Alcohol Testing, Louisiana State Police

Blood Stain Evidence, Herb MacDonell

Chromatographic Methods in Forensic Science, FBI

Clandestine Laboratory Synthesis, DEA

Cost Effective Processing for Latent Prints & Shoe Impressions, MAFS/SAFS

DNA Typing, SWAFS

Effects of Alcohol, James Garriot, Ph.D., SAFS

Forensic Microscopy, Walter McCrone

Hair Comparison, SWAFS

International Symposium on Setting Quality Standards for the

Forensic Science Community, FBI

International Symposium on the Forensic Aspects of Controlled

Substances, DEA & FBI

Internet for Forensic Scientists, SAFS

Laboratory Analysis in Arson Matters, FBI

Laboratory Auditing, National Forensic Science Technology Center

Laboratory Quality Assurance, FBI

Mass Spectrometer Operator & Maintenance Training, Hewlett-Packard Co.

Media Relations - How To, SWAFS

Sig-Sauer Law Enforcement Armorer's Course

Symposium on Crime Laboratory Development, FBI, 1991-1998

TRAINING GIVEN & PRESENTATIONS MADE

Basic Fire Debris School, Lab Instructor - ATF/SAFS 1989
"Implementing Advanced Computer Technology in Forensic Laboratories," IAFS, Tokyo, 1996
Internet for Forensic Scientists - MAFS/SAFS 1995, IAFS 1996, SAFS 1996, AAFS 1997

MANAGERIAL EXPERIENCE

Auditing - After receiving <u>Laboratory Auditing</u> training, I have participated in six pre-ASCLD/LAB audits for the NFSTC (Kansas Bureau of Investigation, Oklahoma Bureau of Investigation, Los Angeles County S. O., Palm Beach County S. O., Massachusetts State Police, Phoenix Police Department, and New Jersey State Police), including team captain in Massachusetts. Additionally, I partnered with Kevin Lothridge to perform audits covering the laboratory information management systems of two statewide laboratory systems (Illinois State Police and Colorado Bureau of Investigation).

Budgeting and Planning - As director of a stand-alone crime lab, I have been responsible for all planning and budgeting functions since 1992. There being no parent agency, I have arranged for all services needed by the Acadiana Criminalistics Lab, including liability, property, and workers' compensation

insurance, salary scales, personnel fringe benefits (health insurance, retirement, deferred compensation, cafeteria plans, and supplemental insurance), transportation and training, equipment and supply procurement, hiring, basic physical plant needs (electricity, water, sewerage, telephony, security, waste disposal, and maintenance), and professional service (annual financial audits, proficiency tests, and external audits and inspections). Each year an external financial audit by a private CPA firm, reviewed by the Louisiana Legislative Auditor, has affirmed sound accounting practices by this laboratory.

Grant Procurement and Management - Since 1988 I have overseen the procurement and management of 12 federal and state grants, which have provided \$648,873 for personnel, equipment, supplies, contractual services, and training. Of the total, \$113,963 was obtained to provide training for about 240 students from Louisiana's eight crime laboratories. These students were offered 16 courses covering basic and advanced topics in trace evidence, fire debris, firearms, toolmarks, microscopy, laboratory auditing, bloodstain pattern interpretation, expert testimony and communications, blood alcohol testing, DNA, and evidence control. The average class lasts 4 days and cost \$475 per student, including room and board.

4.2 Description of methodology

Understanding of Maryland's Requirements:

The NFSTC will assist the Maryland State Police Statewide Forensic Services Task Force to develop a strategic master plan. This plan will maximize Maryland's forensic capabilities over the short and long term. The plan will also be beneficial when it comes to leveraging Federal, State, and Local resources. The assistance the NFSTC will provide include:

- 1) A summary of assessment findings with respect to current needs and capabilities
- 2) Recommended short term improvements to delivery of current forensic services
- 3) Recommended long term improvements of forensic services statewide.

These key products will be accomplished through the use of three tools - customized surveys, on-site assessments, and staff forums, as detailed below. Employing this combination of tools will fully capture the information necessary to provide the comprehensive view needed by the Task Force in its effort to develop the strategic master plan. One tool cannot effectively capture all the information needed. For example, written surveys alone cannot reveal the condition of equipment, the implementation of security measures, and other issues regarding physical plant. Feedback from laboratory staff and stakeholders is essential to determine their needs and expectations for the forensic services available within Maryland.

Activities:

Customized Surveys – Three (3) survey instruments will be designed and implemented, one for the 11 forensic science laboratories, the second for the 93 police agency and State Police Barracks, and the third for the 24 State's Attorney's Offices.

The purpose of surveying the 11 laboratories is to capture standardized information about their equipment inventory and replacement needs, work volume and performance, staff qualifications, size and allocation, and quality assurance system data.

The other two surveys will obtain information from the major stakeholders of forensic services in Maryland – police and prosecution agencies. The surveys will focus on stakeholders' needs and the degree to which they are being met.

On-Site Assessments – The majority of information necessary to aid the Task Force must be obtained by first hand observation and inspection by NFSTC staff with specialized experience in forensic laboratory analysis and needs assessment. The examination of physical plant, work conditions, and conformance with standards will be assessed as required by the RFP (laboratory safety, physical environment, computer software and hardware, evidence handling, etc.). Although the RFP does not specify the use of on-site assessments, the information gained by personal inspection cannot be gathered by a written survey.

Forums and Workshop – A strategic focus forum worked for four days with a group of 20 persons chosen to represent a cross section of analysts, managers and support staff in the forensic service organizations. The first two days took the group through the process of recognizing and identifying stakeholders, then explored the values of the users and providers of the forensic services. This enabled the group to recognize that successful development of service delivery has to meet the needs of the stakeholders but in a way that is consistent with the values of the organization and its staff. The second two days of strategic forum work occurred after the stakeholder surveys were completed. Data were reviewed, analyzed, and categorized. With the knowledge of stakeholder views, the forum members worked on vision and purpose statements. The forum also drafted recommendationsfor the Maryland State Plan. See section 4.6 for notes from this session.

The State of Maryland now has a group of forensic scientists from nine of its forensic science laboratories who have received training and skills that will be useful to implementation of recommendations.

4.3 Survey instruments

4.3.1 Laboratories

BACKGROUND

The National Forensic Science Technology Center has been engaged by the State of Maryland to perform a needs assessment of its forensic services. The process chosen is a highly participative one but the first step is to obtain baseline information on current services. This survey form is being issued for that purpose.

The quality of the assessment and therefore the value to you of any recommendations will depend on the quality of the baseline information. We realize that some of the questions can be answered in different ways depending on the practices employed in individual laboratories. Please complete the survey to the best extent possible. If there are questions that you are not sure about or where you feel a slightly different orientation would provide more valuable information, you are encouraged to give your perspective on a separate sheet. Likewise if you feel any answer requires amplification or qualification, provide that information too.

| e-Mail | _ |
|--|--|
| NOTE: Where the survey requests a response as FTE please total the number of full time equivalent positions. The grade or salary have 10 analysts of various grades each of whom spends about 4 hou 1.0 FTE. | of the position does not matter. Thus if you |
| 3. Financial resource management Annual salary budget (including fringes) of your laboratory Annual equipment budget of your laboratory Annual training budget for lab personnel Annual consumable supply budget of your laboratory Total annual budget including all of the above Grant monies received | |
| 4. Does your laboratory have a capital equipment replacement plan? Yes No | |
| 5. Human resource management Number of full-time testifying analysts Number of full-time technical support staff members Number of supervisory staff Laboratory floor space (square feet) | |
| 6. What are your laboratory's major training shortfalls, if any? (Briefly | · |
| 7. Quality Management - Annual commitment to Quality Assurance Proficiency test purchase (\$) PT program management (FTE) File review (FTE) Quality system maintenance (FTE) | |
| 8. In what areas, if any, do you see a need to improve quality of you describe) | ur laboratory's system or operations? (Briefly |
| | |
| 9. Is there a position identified as Quality Manager? Yes No | |
| 10. Does your laboratory have a quality manual? Yes No | |

Fax

| 11. Does your laboratory have a Yes | n Automate | ed Laboratory Info | mation Syst | rem (LIMS)? | |
|--|--|--|--------------------------|----------------------|----------------------------|
| 12. If "Yes" to #11, complete the | e following | : | | | |
| U: | se a lot | Use sometime | D | o not use, or rarel | у |
| Data capture and manipulation f Evidence tracking Report writing Analyst performance monitoring Case turnaround time monitoring Case management | 2 | nentation | | | |
| 13. Does your laboratory have a Yes No | Manageme | ent Information Sys | stem that is r | not part of a LIMS | ? |
| 14. If "Yes" to #13, complete the | e following | : | | | |
| Use networked of | computer | Use stand alone co | omputer U | se manual records | |
| Evidence tracking Analyst performance monitoring Case turnaround time monitoring Case management Financial or budget managemen | g | | | | |
| 15. Performance Management | | | | | |
| Does your laboratory have performed by the policy of the p | ers for inforers on how to formance re | mation on their nee well you meet their eview / appraisal sy | eds? needs? /stem? | es e laboratory? | No |
| 16. For each area of analysis list recent year for which data has be | ted in the ne | ext 18 questions, ared, enter your estim | nd using AT nate of: | LEAST the numb | per of cases, for the most |
| The number received The number analyzed Turnaround time (defin | ned as the a | verage number of d | ays from rec | ceipt to case closin | ıg) |
| @If you choose, you m | ay also list | the number of item | ıs, submissio | ons, or pieces | |
| How does your laboratory defin | e a case? _ | | | | |
| 17. DNA with subjects for comp Cases received Cases analyzed Items received@ | oarison: - - | | | | |

| Items analyzed@ | | |
|-----------------------------|---------------------|---|
| Turnaround time | | |
| RFLP/STR/Other | (Specify) | |
| DNA outsourced to | | |
| | | |
| | | |
| 18. DNA without subjects f | for comparison: | |
| Cases received | | |
| Cases analyzed | | |
| Items received@ | | |
| Items analyzed@ | | • |
| Turnaround time | | |
| | | |
| DNA outsourced to | 0? | _ |
| | | |
| 19. DNA Database: | | |
| Cases received | | |
| Cases analyzed | | |
| Items received@ | | |
| _ | | |
| Items analyzed@ | | |
| Turnaround time | outcoursed to? | |
| Database samples | outsourced to? | |
| | | |
| 20. Forensic Biology Screen | nino· | |
| Cases received | | |
| Cases analyzed | | |
| Items received@ | | |
| Items analyzed@ | | |
| Turnaround time | | |
| Turnaround time | | |
| | | |
| 21. Controlled substance: | | |
| Cases received | | |
| Cases analyzed | | |
| Items received@ | | |
| Items analyzed@ | | |
| Turnaround time | | |
| | | |
| | | |
| 22. Firearms & Toolmarks: | | |
| Cases received | | |
| Cases analyzed | | |
| ltems received@ | | |
| Items analyzed@ | | |
| Turnaround time | | |
| Firearms outsource | ed to? | |
| | | |
| 23. Firearms database (Drug | gfire and/or IBIS): | |
| Cases received | | |
| Cases analyzed | <u> </u> | |
| Items received@ | | |
| Items analyzed@ | | |
| Turnaround time | | |
| IBIS or Drugfire? | | |
| Database outsource | ed to? | |

| 24. | Transfer trace: | | |
|-----|--------------------------|-------------------------|--|
| | Cases received | | |
| | Cases analyzed | | |
| | Items received@ | | |
| | Items analyzed@ | | |
| | Turnaround time | | |
| | | | |
| | | | |
| 25. | Fire debris: | | |
| | Cases received | | |
| | Cases analyzed | | |
| | Items received@ | | |
| | Items analyzed@ | | |
| | Turnaround time | | |
| | | | |
| | | | |
| 26. | Latent prints: | | |
| | Cases received | | |
| | Cases analyzed | | |
| | Items received@ | | |
| | Items analyzed@ | | |
| | Turnaround time | | |
| | i ai nai oana timo | | |
| | | | |
| 27. | Latent prints - database | input (AFIS): | |
| | Cases received | | |
| | Cases analyzed | | |
| | Items received@ | | |
| | Items analyzed@ | | |
| | Turnaround time | | |
| | | | |
| | | | |
| 28. | Explosive residue: | | |
| - | Cases received | | |
| | Cases analyzed | | |
| | Items received@ | | |
| | Items analyzed@ | | |
| | Turnaround time | | |
| | | | |
| | | | |
| 29. | Criminal toxicology (e. | g. urine drug screens): | |
| | Cases received | , | |
| | Cases analyzed | | |
| | Items received@ | | |
| | Items analyzed@ | | |
| | Turnaround time | | |
| | . alliatouna fillo | | |
| | | | |
| 30 | Post-mortem toxicology | /: | |
| | Cases received | | |
| | Cases analyzed | | |
| | Items received@ | | |
| | Items analyzed@ | | |
| | Turnaround time | | |
| | | | |

| 31. Blood alcohol: | | |
|-----------------------------|---|-----------------------|
| Cases received | | |
| Cases analyzed | | |
| Items received@ | | |
| Items analyzed@ | | |
| Turnaround time | | |
| | | |
| 32. Questioned documents | · · | |
| Cases received | 3. | |
| Cases analyzed | | |
| Items received@ | | |
| Items analyzed@ | - | |
| Turnaround time | | |
| rumarouna time | | |
| | | |
| 33. Impressions (footwear | ; tireprints, etc.): | |
| Cases received | · · · · · · · · · · · · · · · · · · · | |
| Cases analyzed | | |
| Items received@ | | |
| Items analyzed@ | | |
| Turnaround time | | |
| | | |
| 34. Computer / Digital evi | idence: | |
| Cases received | | |
| Cases analyzed | | |
| Items received@ | | |
| Items analyzed@ |) | |
| Turnaround time | | |
| | | |
| 0.5 DI 11 | | |
| 35. Please list any explani | tory notes concerning caseload data | |
| | | |
| | | |
| | | |
| 36. Choose the greatest fa | ctor in preventing better service deliver | y in each area below: |
| | | |
| | Lack of current equip. | |
| | Lack of expertise or training | |
| | Demand greater than capacity | |
| | Space limitation | |
| | Staff | |
| | None | |
| DNA with autients | | |
| DNA with subjects | | |
| DNA without subjects | | |
| DNA database | | |

DNA without subjects
DNA database
Forensic biology screening
Controlled substance
Firearms & Toolmarks
Firearms database
Transfer trace
Fire debris

Latent prints Latent print database input Explosive residue Criminal toxicology Post-mortem toxicology Blood alcohol Questioned documents **Impressions** Computer/Digital evidence 37. Within your laboratory, how would you generally rate the quality of the following instrumentation presently in use? N/AObsolete Old, but serviceable Modern, little room to improve State of the art Computers FT-IR UV GC GC/MS **DNA Analysis** Stereomicroscopes Compound microscopes Comparison microscopes SEM Elemental (AA/ICP, etc.) LC LC/MS Cameras Digital imaging Other 38. List the 'other' in #37: Other 39. Using communications and effectiveness in achieving good quality service, please rate the following: Nominal Good Very Good Very poor Poor Relations with crime scene investigators Relations with prosecutor's office Relations with other laboratories 40. For each crime type listed below, and considering the following tests, which is your laboratory likely able to obtain in sufficient time to meet legal and time frame requirements necessary for effective investigation and prosecution? Latent prints: Unknown None Some Most All Homicide

Assault and robbery

Rape and sexual assault
Driving under the influence
Property crimes - burglary, vandalism, arson
Weapons offenses
Possession of controlled substances

41. Trace evidence:

Homicide
Assault and robbery
Rape and sexual assault
Driving under the influence
Property crimes - burglary, vandalism, arson
Weapons offenses
Possession of controlled substances

42. DNA analysis:

Homicide
Assault and robbery
Rape and sexual assault
Driving under the influence
Property crimes - burglary, vandalism, arson
Weapons offenses
Possession of controlled substances

43. Toxicology:

Homicide
Assault and robbery
Rape and sexual assault
Driving under the influence
Property crimes - burglary, vandalism, arson
Weapons offenses
Possession of controlled substances

44. Controlled substances:

Homicide
Assault and robbery
Rape and sexual assault
Driving under the influence
Property crimes - burglary, vandalism, arson
Weapons offenses
Possession of controlled substances

45. Firearms:

Homicide
Assault and robbery
Rape and sexual assault
Driving under the influence
Property crimes - burglary, vandalism, arson
Weapons offenses
Possession of controlled substances

46. If your laboratory is unable to analyze all of the evidence submitted to it, indicate the likelihood of analysis for the following types of cases and evidence:

| | Unlikely to Be Analyzed | Likely to Be Analyzed | Certain to Be Analyzed | | | | | |
|---|--------------------------------|-----------------------|---|--|--|--|--|--|
| Possession of controlled sub | stance | | | | | | | |
| Cases involving firearms | | | | | | | | |
| Rape and sexual assault | | | | | | | | |
| Latent prints from homicide Latent prints from other crimes | | | | | | | | |
| | | | | | | | | |
| Other (specify below) | | | | | | | | |
| 47. List the 'other' from #46 | | | | | | | | |
| Other | | | | | | | | |
| | se use this space or attach ac | | e-related issues of importance to nents or clarifications about your | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

Please forward, via fax, e-mail, or mail, the following information:

- A. Provide capital equipment inventory showing equipment, purchase price, date of purchase, estimated utilization (h/month).
- B. Provide a dimensioned floor plan.
- C. Provide a copy of your quality manual (Electronic copy preferred).
- D. Provide example management reports (monthly, or otherwise).
- E. Provide a brief description of the laboratory's performance review / appraisal system.
- F. Provide the protocol to evaluate whether to introduce a new testing area.

4.3.2 Stakeholders

4.3.2.1 Law Enforcement stakeholders

The purpose of this survey was described in the initial contact letter sent by your local laboratory representative. We hope that you can find the time to complete the survey, as the information is important as we seek ways to provide the highest standard of forensic science service delivery to the State of Maryland.

The letter also identified the point of contact for you in the review group – that is the person to contact with questions.

Forensic science services are provided from several separate facilities within Maryland. The objectives of this survey are to obtain data on how stakeholders view:

- The role of each laboratory as a part of the State investment in public safety
- How well each laboratory satisfies that expectation
- · How each laboratory interacts with stakeholders to identify and respond to service needs
- Each laboratory's strengths and weaknesses
- Changes that could improve service delivery

SURVEY - If you do not have an answer for a question, please enter "NA" 1. Stakeholder Information Name (Optional) Agency Agency Address Agency City Agency State Agency Zip Agency Phone Agency Fax e-Mail (Optional) 2. Which ONE laboratory does this survey address (you should work with your contact person to determine the number of surveys to complete if you utilize the services of multiple laboratories)? Anne Arundel County Baltimore Police Department **Baltimore County** Hagerstown Police Department Maryland State Medical Examiner Maryland State Police - Berlin Maryland State Police - Hagerstown Maryland State Police - Pikesville Montgomery County Ocean City Police Department **Prince Georges County** 3. In this and the next two questions, please list how the work of the laboratory affects your work? 4. 2nd way the work of the laboratory affect your work? 5. 3rd way the work of the laboratory affect your work? 6. Using the three ways you chose above, rate the impact fo the lab work upon your work: Moderate impact Very little impact Major impact 1st way lab affects your work 2nd way lab affects your work 3rd way lab affects your work

• Steps that stakeholders can take to help improve delivery of forensic services

| 7. Please grade the following roles of the laboratory. Please rate each area for its importance to preserving public safety, using the indicated scale: |
|--|
| Major Moderate Minor Assist in crime investigation by including or excluding subjects as possible perpetrators. |
| Assist in effective judicial proceedings by providing associative or exculpatory evidence. Advise on scientific investigation of crime Training and education Other (describe below) |
| 8. Describe "other" rated in #7: |
| 9. Rating the same items as in question 7 (including the "other" described in #8), rate each role as it is filled by the laboratory. If you do not utilize the item, please rate it as N/A: |
| Meets Need Very Well Meets Need Somewhat Does Not Meet Need N/A |
| Assist in crime investigation by including or excluding subjects as possible perpetrators. Assist in effective judicial proceedings by providing associative or exculpatory evidence. Advise on scientific investigation of crime Training and education Other (as described in #8) 10. Please grade the following characteristics of the laboratory. |
| Excellent Moderate Poor Unknown Staff qualifications Staff numbers Provides fault-free service Professionalism Independence Provides all necessary services Location and accessibility Reports and testimony helpful and easy to follow Understands my needs and seeks regular feedback on performance Other - A Other - B |
| 11. Describe "Other - A" from #10: |
| 12. Describe "Other - B" from #10: |
| 13. Things to change - Please rank each potential change to forensic science service delivery, considering you needs and views: |

Extremely Important Somewhat Important More training to submitting agencies In house training on court procedures Additional services such as computer data recovery, printer analysis Discussions when serious or complex case is submitted Communication policy - reinforcing confidentiality Encourage partnerships with other labs

Conduct research and development Scene assistance

Deal with backlog

More satellite labs

Other - C

Other - D

| 14. Describe "Other - C" in #13 | |
|---------------------------------|--|
| | |

15. Describe "Other - D" in #13

16. Ways to help - please check the items you, as a stakeholder, would be willing to do to help improve forensic service delivery in Maryland:

Provide better information at very beginning Submit only appropriate samples correctly packaged Learn more about the laboratory services Provide training assistance Prioritize examinations Implement communication plan

Other - E Other - F

17. Describe "Other - E" in #16

18. Describe "Other - F" in #16

19. To evaluate and consider all forensic science services in Maryland, it is necessary to obtain data concerning services provided outside the 11 crime laboratories listed above in question 2. Please select each of the following forensic services that your agency performs rather than submitting samples to one of the 11 laboratories. Do not count or include samples submitted to your own laboratory if it is one of the 11 listed above.

Marijuana analysis Other drug analysis Crime scene analysis Latent print comparison AFIS entry of latent prints Firearms examination Examination of items for biological stains Direct submission of samples to private DNA laboratory Not At All Important

Shoe & tire pattern comparison Computer evidence

| 20. For each item selected in #19, please list the number performed annually and the current backlog of cases awaiting analysis. Please list other information, such as techniques used or DNA laboratory used. |
|--|
| 21. Concerning confiscated or recovered firearms: How many does your agency receive in a year? How many does your agency submit to the crime lab? |
| 22. A survey cannot capture all information on a topic. In the space below, please add any other comments you care to make concerning delivery of forensic services in Maryland. |
| 4.3.2.2 General stakeholders |
| The purpose of this survey was described in the initial contact letter sent by your local laboratory representative. We hope that you can find the time to complete the survey, as the information is important as we seek ways to provide the highest standard of forensic science service delivery to the State of Maryland. |
| The letter also identified the point of contact for you in the review group – that is the person to contact with questions. |
| Forensic science services are provided from several separate facilities within Maryland. The objectives of this survey are to obtain data on how stakeholders view: |
| The role of each laboratory as a part of the State investment in public safety How well each laboratory satisfies that expectation How each laboratory interacts with stakeholders to identify and respond to service needs Each laboratory's strengths and weaknesses Changes that could improve service delivery Steps that stakeholders can take to help improve delivery of forensic services |
| SURVEY - If you do not have an answer for a question, please enter "NA" |
| 1. Stakeholder Information Name (Optional) Agency Agency Address Agency City Agency State Agency Zip Agency Zip Agency Phone Agency Fax e-Mail (Optional) |
| 2. Which ONE laboratory does this survey address (you should work with your contact person to determine the number of surveys to complete if you utilize the services of multiple laboratories)? Anne Arundel County Baltimore Police Department Baltimore County Hagerstown Police Department |

Maryland State Medical Examiner
Maryland State Police - Berlin
Maryland State Police - Hagerstown
Maryland State Police - Pikesville
Montgomery County
Ocean City Police Department
Prince Georges County

| 3. In this a | | | | | | ffects your v | vork? |
|---------------------------|--|--------------------------------------|-------------------|----------------|---------------------------------------|-----------------------|------------------------|
| 4. 2nd wa | y the work of th | ne laboratory | affect your wo | rk? | | _ _ _ | |
| 5. 3rd way | | | affect your wor | | | _ _ _ | |
| | ne three ways y Major impact | | | pact fo the la | ab work upon yo | our work: | |
| 2nd w | ay lab affects yo yay lab affects y ay lab affects y | our work | | | | | |
| | grade the follo | | | y. Please r | ate each area fo | or its import | ance to preserving |
| | | Major | | Moderate | | Minor | |
| Assist Advis Traini | | dicial procee investigation on | dings by provid | | cts as possible p ive or exculpato | | |
| 8. Describ | | | | | | | |
| | the same items | as in questio | | he "other" d | escribed in #8), | - rate each ro | ole as it is filled by |
| the labora | • | | ne item, please r | | | -4311 | 21.4 |
| | Meets Need V | ery Well | Meets Need S | omewhat | Does Not Me | et Need | N/A |

Assist in crime investigation by including or excluding subjects as possible perpetrators. Assist in effective judicial proceedings by providing associative or exculpatory evidence.

Advise on scientific investigation of crime Training and education Other (as described in #8)

| 10. Please grade the following characteristics | cteristics of th | e laboratory. | | |
|--|--|----------------|--------------|------------------------------------|
| Staff qualifications Staff numbers Provides fault-free service Professionalism Independence Provides all necessary services Location and accessibility Reports and testimony helpful ar Understands my needs and seeks Other - A Other - B | | | Poor | Unknown |
| 11. Describe "Other - A" from #10: | | | | |
| 12. Describe "Other - B" from #10: | | | | |
| 13. Things to change - Please rank e needs and views: | ach potential | change to fore | nsic science | service delivery, considering your |
| Extremely | Important | Somewhat I | mportant | Not At All Important |
| More training to submitting ager Deal with backlog In house training on court proce Additional services such as com More satellite labs Discussions when serious or con Communication policy - reinfore Encourage partnerships with oth Conduct research and developm Scene assistance Other - C Other - D | dures puter data reco nplex case is s cing confident er labs | submitted | nalysis | |
| 14. Describe "Other - C" in #13 | | | | |

15. Describe "Other - D" in #13

16. Ways to help - please check the items you, as a stakeholder, would be willing to do to help improve forensic service delivery in Maryland:

Provide better information at very beginning

Submit only appropriate samples correctly packaged

Learn more about the laboratory services

Provide training assistance

Prioritize examinations

Implement communication plan

Other - E

Other - F

| 1 | 7. | Describe | "Other - | E" | in | # | 16 | 5 |
|---|----|----------|----------|----|----|---|----|---|
|---|----|----------|----------|----|----|---|----|---|

18. Describe "Other - F" in #16

19. A survey cannot capture all information on a topic. In the space below, please add any other comments you care to make concerning delivery of forensic services in Maryland.

4.4 Summary of survey responses

4.4.1 Law Enforcement stakeholders

4.4.1.1 Survey responses

| Count | Percent |
|-------|-----------------------------------|
| 3 | 2.1% |
| 23 | 16.4% |
| 8 | 5.7% |
| 5 | 3.6% |
| 7 | 5.0% |
| 25 | 17.9% |
| 8 | 5.7% |
| 47 | 33.6% |
| 4 | 2.9% |
| 1 | 0.7% |
| 9 | 6.4% |
| | 3 23 8 5 7 25 8 |

4.4.1.2 Laboratory roles - Law Enforcement stakeholders

Stakeholders were asked to rate the role of the crime laboratories and how well the labs filled that role.

Assist in crime investigation by including or excluding subjects as possible perpetrators.

| | Count | Percentag | ge Answered |
|---------------|---------|-----------|---------------------|
| Major | 94 | 68.6% | |
| Moderate | 22 | 16.1% | |
| Minor | 20 | 14.6% | |
| | | Count | Percentage Answered |
| Meets Need Ve | ry Well | 92 | 66.2% |

| Meets Need Somewhat | 21 | 15.1% |
|---------------------|----|-------|
| Does Not Meet Need | 4 | 2.9% |
| N/A | 21 | 15.1% |

Assist in effective judicial proceedings by providing associative or exculpatory evidence.

| | Count | Percentage Answered | | |
|----------------------|-------|---------------------|---------------------|--|
| Major | 111 | 79.3% | | |
| Moderate | 23 | 16.4% | | |
| Minor | 5 | 3.6% | | |
| | | Count | Percentage Answered | |
| Meets Need Very Well | | 100 | 71.9% | |
| Meets Need Somewhat | | 22 | 15.8% | |
| Does Not Meet Need | | 3 | 2.2% | |
| N/A | | 13 | 9.4% | |

Advise on scientific investigation of crime

Count

| Count | Percentag | ge Answered |
|--------|-----------|--|
| 82 | 59.4% | |
| 34 | 24.6% | |
| 21 | 15.2% | |
| | Count | Percentage Answered |
| y Well | 72 | 51.4% |
| newhat | 35 | 25.0% |
| Need | 12 | 8.6% |
| | 20 | 14.3% |
| | 82 34 | 82 59.4% 34 24.6% 21 15.2% Count y Well 72 newhat 35 Need 12 |

Training and education

| Major | 45 | 32.8% | |
|---------------|---------|-------|---------------------|
| Moderate | 53 | 38.7% | |
| Minor | 38 | 27.7% | |
| | | | |
| | | Count | Percentage Answered |
| Meets Need Ve | ry Well | 33 | 24.1% |
| Meets Need So | mewhat | 56 | 40.9% |
| Does Not Meet | ••• | 17 | 12.4% |

30

4.4.1.3 Laboratory characteristics ratings - Law Enforcement stakeholders

Percentage Answered

Staff qualifications

N/A

| | Count | Percentage Answered |
|-----------|-------|---------------------|
| Excellent | 103 | 73.6% |
| Moderate | 14 | 10.0% |

21.9%

| Poor | 1 | 0.7% |
|---------|----|-------|
| Unknown | 21 | 15.0% |

Staff numbers

| | Count | Percentage Answered |
|-----------|-------|---------------------|
| Excellent | 28 | 20.0% |
| Moderate | 58 | 41.4% |
| Poor | 25 | 17.9% |
| Unknown | 28 | 20.0% |

Provides fault-free service

| Count | Percentage Answered |
|-------|---------------------|
| 78 | 55.7% |
| 45 | 32.1% |
| 2 | 1.4% |
| 14 | 10.0% |
| | 78 45 2 |

Professionalism

| Count | Percentage Answered |
|-------|---------------------|
| 114 | 81.4% |
| 21 | 15.0% |
| 2 | 1.4% |
| 2 | 1.4% |
| | 114 21 2 |

Independence

| | Count | Percentage Answered |
|-----------|-------|---------------------|
| Excellent | 86 | 61.9% |
| Moderate | 32 | 23.0% |
| Poor | 1 | 0.7% |
| Unknown | 19 | 13.7% |

Provides all necessary services

| | Count | Percentage Answered |
|-----------|-------|---------------------|
| Excellent | 72 | 51.4% |
| Moderate | 54 | 38.6% |
| Poor | 9 | 6.4% |
| Unknown | 4 | 2.9% |

Location and accessibility

| | Count | Percentage Answered |
|-----------|-------|---------------------|
| Excellent | 70 | 50.4% |
| Moderate | 41 | 29.5% |
| Poor | 25 | 18.0% |
| Unknown | 2 | 1.4% |

Reports and testimony helpful and easy to follow

| | Count | Percentage Answered |
|-----------|-------|---------------------|
| Excellent | 97 | 69.3% |
| Moderate | 30 | 21.4% |
| Poor | 1 | 0.7% |
| Unknown | 11 | 7.9% |

Understands my needs and seeks regular feedback on performance

| | Count | Percentage Answered |
|-----------|-------|---------------------|
| Excellent | 63 | 45.3% |
| Moderate | 49 | 35.3% |
| Poor | 19 | 13.7% |
| Unknown | 7 | 5.0% |

4.4.1.4 Things to change - Law Enforcement stakeholders

Stakeholders were asked how important the following changes are:

More training to submitting agencies

| | Count | Percentage Answered |
|----------------------|-------|---------------------|
| Extremely Important | 82 | 59.0% |
| Somewhat Important | 52 | 37.4% |
| Not At All Important | 4 | 2.9% |

Deal with backlog

| | Count | Percentage Answered |
|----------------------|-------|---------------------|
| Extremely Important | 93 | 67.4% |
| Somewhat Important | 33 | 23.9% |
| Not At All Important | 11 | 8.0% |

In house training on court procedures

| • | Count | Percentage Answered |
|----------------------|-------|---------------------|
| Extremely Important | 53 | 38.1% |
| Somewhat Important | 64 | 46.0% |
| Not At All Important | 21 | 15.1% |

Additional services such as computer data recovery, printer analysis

| | Count | Percentage A |
|----------------------|-------|--------------|
| Extremely Important | 66 | 48.2% |
| Somewhat Important | 44 | 32.1% |
| Not At All Important | 26 | 19.0% |

More satellite labs

| | Count | Percentage Answered |
|----------------------|-------|---------------------|
| Extremely Important | 51 | 37.0% |
| Somewhat Important | 38 | 27.5% |
| Not At All Important | 48 | 34.8% |

Discussions when serious or complex case is submitted

| | Count | Percentage Answered |
|----------------------|-------|---------------------|
| Extremely Important | 103 | 74.1% |
| Somewhat Important | 25 | 18.0% |
| Not At All Important | 10 | 7.2% |

Communication policy - reinforcing confidentiality

| | Count | Percentage Answered |
|----------------------|-------|---------------------|
| Extremely Important | 67 | 48.2% |
| Somewhat Important | 48 | 34.5% |
| Not At All Important | 23 | 16.5% |

Encourage partnerships with other labs

| | Count | Percentage Answered |
|----------------------|-------|---------------------|
| Extremely Important | 67 | 49.3% |
| Somewhat Important | 47 | 34.6% |
| Not At All Important | 21 | 15.4% |

Conduct research and development

| · | Count | Percentage Answered |
|----------------------|-------|---------------------|
| Extremely Important | 67 | 48.9% |
| Somewhat Important | 52 | 38.0% |
| Not At All Important | 17 | 12.4% |

Scene assistance

| | Count | Percentage Answered |
|----------------------|-------|---------------------|
| Extremely Important | 70 | 51.1% |
| Somewhat Important | 39 | 28.5% |
| Not At All Important | 27 | 19.7% |

4.4.1.5 Stakeholder assistance - Law Enforcement stakeholders

Stakeholders were asked, "Please check the items you, as a stakeholder, would be willing to do to help improve forensic service delivery in Maryland:

| | Count | Percentage Answered |
|--|-------|---------------------|
| Provide better information at very beginning | 108 | 77.1% |
| Submit only appropriate samples correctly packaged | 103 | 73.6% |
| Learn more about the laboratory services | 105 | 75.0% |
| Provide training assistance | 63 | 45.0% |
| Prioritize examinations | 84 | 60.0% |
| Implement communication plan | 57 | 40.7% |

4.4.2 General stakeholders

4.4.2.1 Survey responses

| | Count | Percent |
|-----------------------------|-------|---------|
| Anne Arundel County | 2 | 3.5% |
| Baltimore Police Department | 18 | 31.6% |

| Baltimore County | 1 | 1.8% |
|------------------------------------|----|-------|
| Hagerstown Police Department | 1 | 1.8% |
| Maryland State Medical Examiner | 5 | 8.8% |
| Maryland State Police - Berlin | 4 | 7.0% |
| Maryland State Police - Hagerstown | 3 | 5.3% |
| Maryland State Police - Pikesville | 14 | 24.6% |
| Montgomery County | 3 | 5.3% |
| Ocean City Police Department | 0 | 0.0% |
| Prince Georges County | 6 | 10.5% |

4.4.2.2 Laboratory roles - General stakeholders

Stakeholders were asked to rate the role of the crime laboratories and how well the labs filled that role.

Assist in crime investigation by including or excluding subjects as possible perpetrators.

| | Count | Percentag | ge Answered |
|----------------|--------|-----------|---------------------|
| Major | 43 | 74.1% | |
| Moderate | 8 | 13.8% | |
| Minor | 7 | 12.1% | |
| | | Count | Percentage Answered |
| Meets Need Ver | y Well | 31 | 53.4% |
| Meets Need Son | newhat | 11 | 19.0% |
| Does Not Meet | Need | 1 | 1.7% |
| N/A | | 15 | 25.9% |

Assist in effective judicial proceedings by providing associative or exculpatory evidence.

| | Count | Percentag | ge Answered |
|---------------|---------|-----------|---------------------|
| Major | 47 | 81.0% | |
| Moderate | 7 | 12.1% | |
| Minor | 4 | 6.9% | |
| | | Count | Percentage Answered |
| Meets Need Ve | ry Well | 32 | 56.1% |
| Meets Need So | mewhat | 15 | 26.3% |
| Does Not Meet | Need | 0 | 0.0% |
| N/A | | 10 | 17.5% |

Advise on scientific investigation of crime

| | Count | Percentag | ge Answered |
|---------------|---------|-----------|---------------------|
| Major | 36 | 64.3% | |
| Moderate | 13 | 23.2% | |
| Minor | 7 | 12.5% | |
| | | Count | Percentage Answered |
| Meets Need Ve | ry Well | 28 | 49.1% |
| Meets Need So | mewhat | 18 | 31.6% |

| Does Not Meet Need | 3 | 5.3% |
|--------------------|---|-------|
| N/A | 8 | 14.0% |

Training and education

| | Count | Percentag | ge Answered |
|------------------|-------|-----------|---------------------|
| Major | 19 | 35.2% | |
| Moderate | 21 | 38.9% | |
| Minor | 14 | 25.9% | |
| | | Count | Percentage Answered |
| Meets Need Very | Well | 15 | 27.8% |
| Meets Need Some | what | 24 | 44.4% |
| Does Not Meet Ne | ed | 5 | 9.3% |
| N/A | | 10 | 18.5% |

4.4.2.3 Laboratory characteristics ratings - General stakeholders

Staff qualifications

| | Count | Percentage Answered |
|-----------|-------|---------------------|
| Excellent | 36 | 63.2% |
| Moderate | 12 | 21.1% |
| Poor | 0 | 0.0% |
| Unknown | 9 | 15.8% |

Staff numbers

| | Count | Percentage Answered |
|-----------|-------|---------------------|
| Excellent | 9 | 15.8% |
| Moderate | 21 | 36.8% |
| Poor | 10 | 17.5% |
| Unknown | 17 | 29.8% |

Provides fault-free service

| | Count | Percentage Answered |
|-----------|-------|---------------------|
| Excellent | 29 | 50.9% |
| Moderate | 14 | 24.6% |
| Poor | 3 | 5.3% |
| Unknown | 11 | 19.3% |

Professionalism

| | Count | Percentage Answered |
|-----------|-------|---------------------|
| Excellent | 42 | 73.7% |
| Moderate | 11 | 19.3% |
| Poor | 2 | 3.5% |
| Unknown | 2 | 3.5% |

Independence

| | Count | Percentage Answered |
|-----------|-------|---------------------|
| Excellent | 32 | 56.1% |
| Moderate | 10 | 17.5% |
| Poor | 4 | 7.0% |
| Unknown | 11 | 19.3% |

Provides all necessary services

| | Count | Percentage Answered |
|-----------|-------|---------------------|
| Excellent | 26 | 45.6% |
| Moderate | 12 | 21.1% |
| Poor | 7 | 12.3% |
| Unknown | 12 | 21.1% |

Location and accessibility

| | Count | Percentage Answered |
|-----------|-------|---------------------|
| Excellent | 29 | 50.9% |
| Moderate | 15 | 26.3% |
| Poor | 5 | 8.8% |
| Unknown | 8 | 14.0% |

Reports and testimony helpful and easy to follow

| | Count | Percentage Answered |
|-----------|-------|---------------------|
| Excellent | 36 | 63.2% |
| Moderate | 13 | 22.8% |
| Poor | 3 | 5.3% |
| Unknown | 5 | 8.8% |

Understands my needs and seeks regular feedback on performance

| | Count | Percentage Answered |
|-----------|-------|---------------------|
| Excellent | 30 | 52.6% |
| Moderate | 9 | 15.8% |
| Poor | 9 | 15.8% |
| Unknown | 9 | 15.8% |

4.4.2.4 Things to change - General stakeholders

Stakeholders were asked how important the following changes are:

More training to submitting agencies

| | Count | Percentage Answered |
|----------------------|-------|---------------------|
| Extremely Important | 29 | 52.7% |
| Somewhat Important | 21 | 38.2% |
| Not At All Important | 5 | 9.1% |

| acklog |
|--------|
| |

| | Count | Percentage Answered |
|----------------------|-------|---------------------|
| Extremely Important | 41 | 73.2% |
| Somewhat Important | 12 | 21.4% |
| Not At All Important | 3 | 5.4% |

In house training on court procedures

| | Count | Percentage Answered |
|----------------------|-------|---------------------|
| Extremely Important | 20 | 36.4% |
| Somewhat Important | 22 | 40.0% |
| Not At All Important | 13 | 23.6% |

Additional services such as computer data recovery, printer analysis

| | Count | Percentage Answered |
|----------------------|-------|---------------------|
| Extremely Important | 26 | 47.3% |
| Somewhat Important | 23 | 41.8% |
| Not At All Important | 6 | 10.9% |

More satellite labs

| | Count | Percentage Answered |
|----------------------|-------|---------------------|
| Extremely Important | 13 | 23.6% |
| Somewhat Important | 15 | 27.3% |
| Not At All Important | 27 | 49.1% |

Discussions when serious or complex case is submitted

| | Count | Percentage Answered |
|----------------------|-------|---------------------|
| Extremely Important | 37 | 67.3% |
| Somewhat Important | 11 | 20.0% |
| Not At All Important | 7 | 12.7% |

Communication policy - reinforcing confidentiality

| , - | Count | Percentage Answered |
|----------------------|-------|---------------------|
| Extremely Important | 19 | 34.5% |
| Somewhat Important | 23 | 41.8% |
| Not At All Important | 13 | 23.6% |

Encourage partnerships with other labs

| | Count | Percentage Answered |
|----------------------|-------|---------------------|
| Extremely Important | 18 | 32.7% |
| Somewhat Important | 26 | 47.3% |
| Not At All Important | 11 | 20.0% |

Conduct research and development

| | Count | Percentage Answered |
|----------------------|-------|---------------------|
| Extremely Important | 19 | 34.5% |
| Somewhat Important | 24 | 43.6% |
| Not At All Important | 12 | 21.8% |

Scene assistance

| | Count | Percentage Answered |
|----------------------|-------|---------------------|
| Extremely Important | 28 | 50.9% |
| Somewhat Important | 14 | 25.5% |
| Not At All Important | 13 | 23.6% |

4.4.2.5 General stakeholder assistance

Stakeholders were asked, "Please check the items you, as a stakeholder, would be willing to do to help improve forensic service delivery in Maryland:

| | Count | Percentage Answered |
|--|-------|---------------------|
| Provide better information at very beginning | 32 | 54.2% |
| Submit only appropriate samples correctly packaged | 21 | 35.6% |
| Learn more about the laboratory services | 46 | 78.0% |
| Provide training assistance | 33 | 55.9% |
| Prioritize examinations | 30 | 50.8% |
| Implement communication plan | 25 | 42.4% |

4.5 Forum members

| First Name | Last Name | Agency Name |
|------------|---------------|----------------------------------|
| Annette | Box | Anne Arundel Co. PD Crime Lab |
| Bob | Llano | Anne Arundel Co. PD Crime Lab |
| Lorinda | Titus | Anne Arundel Co. PD Crime Lab |
| Cassandra | Padula | Baltimore County Police FSS |
| Robert | Hurley | Baltimore City Police Crime Lab |
| Pamela | Shaw | Baltimore City Police Crime Lab |
| Susan | Blankenship | Hagerstown Police Crime Lab |
| Troy | Oliver | Montgomery Co. Police Crime Lab |
| Jocelyn | Santos | Montgomery Co. Police Crime Lab |
| Kary | Tontarski | Montgomery Co. Police Crime Lab |
| Isabel | Conley-Waters | MSPCL - Berlin |
| James | Lehr | MSPCL - Hagerstown |
| Leonard | Butt | MSPCL – Pikesville |
| Joan | DiMartino | MSPCL – Pikesville |
| Angela | Gross | MSPCL – Pikesville |
| Sandra | Hartsock | MSPCL – Pikesville |
| Vonzella | Johnson | MSPCL – Pikesville |
| Sarah | Cheroweth | Prince George's County Crime Lab |
| Alan | Jackson | Prince George's County Crime Lab |
| Norman | Mausolf | Prince George's County Crime Lab |

4.6 Forum outcomes

On August 7 & 8, 2001, the Forum Members met at the BWI Airport Sheraton to analyze the stakeholder data and participate in the following exercises. The NFSTC facilitated the sessions, with the Forum arriving at consensus decisions.

Forum Exercise - The State Plan

Using the model of "MD STATE FORENSIC SCIENCE SERVICES (MDSFSS)" develop the desired statewide view of forensic service provision in Maryland. The model was used to capture information, not to establish a statewide system.

Purpose

Provide quality, efficient and comprehensive forensic services to all participants in the Criminal Justice System.

We achieve our purpose by:

Quality

Establish and implement standards for forensic science, QA standards (18)
Training (17)
Professionalism (15)
Timely (11)
R&D (3)

Efficient

Foster communication within and between stakeholders (49) Staffing (numbers, skills, management structure) (49) Technology and instrumentation (47) Cost effective (14)

Comprehensive

Range of services including crime scene (17) Non-biased Expert Testimony (12) Geographical sites (4)

Our values

Professionalism; Foster respect (Inside and outside) (13)
Quality (Over Quantity) Strive for Technical excellence (13)
Employee development; Opportunity to learn; Training (11)
Code of Ethics Public confidence; Professional ethics (9)
Competent leadership for a well-trained staff; Clear goals and objectives; Teamwork between the sections (9)
Communication (8)
Support for laboratory personnel and system (7)
Independence (5)
System of reward and recognition; Respect and recognition for staff (2)
Respectful working environment (1)
Equipment meets need of services; Right tools (0)
Positive attitude encourages open communication; Sense of accomplishment and direction (0)

In order to achieve the objective of:

Establish and implement standards for forensic science, QA standards

We recommend that the State:

Mandates that all labs be accredited by 2005

Mandates that laboratories provide resources to support personal certification through recognized programs, such as ABC and IAI, with effect from January 1, 2003

Establishes a mechanism to coordinate this entire effort for the state and ensure continuing compliance

In order to achieve the objective of:

Foster communication within and between stakeholders

We recommend that the State:

Enables state-wide distribution and tracking of forensic case reports and related information through provision of a unified LIMS system (supported by a Systems Administrator) that can permit automated reporting and tracking of information and reports between laboratories and users, as well as individual email, together with sufficient access points in user facilities, and:

Establishes a forensic intranet containing a Practitioner database, List of services, Clear instructions to user agencies on routing and requests. Laboratory submission guidelines. Feedback mechanism, Complaint form. Standardized submission forms, Standardized reporting.

Video conferencing

Legislates to permit acceptance of electronically transmitted reports.

The MDFSS maintains a public web site for general information distribution.

And these non-electronic, good ol' fashioned things too:

Scheduled meetings to discuss problems (focus groups). Piggy back on other meetings such as States Attorney meetings, Judges conferences, MSP training workshops, seminars, etc

In order to achieve the objective of:

Range of services including crime scene

We recommend that the State:

Ensures that there is a network of laboratories to provide a timely service to law enforcement needs in:

- *Controlled Substances
- *Latent prints
 - *development

Identifications

*Crime Scene

- *Biology
- *Photography
- * = basic services offered in all regions

and a more limited number of specialist laboratories providing services in:

Trace -

fibers, hair, glass, paint, soil, physical matches, fabric separations, wood, filaments, speedometers, distance determinations, gunshot residues, fire debris, explosive residues

DNA

Firearms & Toolmarks
Questioned Documents
Blood spatter
Computer forensics
Digital evidence
Footwear and tire tracks
Blood alcohol concentration
Post Mortem Toxicology
Ante Mortem Toxicology

Homework Assignment

Choose three priority areas to which any new funding (such as NFSIA) should be directed:

- Communications computer system information; Information access to everyone that needs it, state-wide database management system. LIMS. Build directory of scientists in MD, one for forensic scientists, one for agencies (33)
- Staffing, salary. Salary rationalization coordination single structure and scale over the state (33)
- Training for things like LP and QD, central service; New hires trained away from agencies free agency from the time demand, Cross training, base for one stop shop (24)
- Specialist centers with the high cost high tech toys Consolidation of services. Cooperation and coordination of resources eliminate redundancies. Computer evidence (23)
- Accreditation and personal certification (21)
- Replacement plan for aged instrumentation (10)
- Support staff (8)
- Service Regionalization more regional labs providing more services (MSPCL perspective) (7)

Parenthesis contains numbers of 'votes' for prioritization purposes

4.7 Stakeholders responding

The following Agencies returned surveys (duplicates indicate multiple responses):

Aberdeen Police Department Allegany County Sheriff's Office Allegany County State's Attorney's Office Anne Arundel County Fire Marshal - Investigations Anne Arundel County Police Department Anne Arundel County Police Department Anne Arundel County Police Dept. Anne Arundel County Police Dept.

Assistant State's Attorney, Washington County

Narcotics Task Force

ATF ATF

Baltimore City Fire Dept Baltimore City Police Baltimore City Police

Baltimore City Sheriff's Office Baltimore County Police

Baltimore County Police Department Baltimore County Police Department Baltimore County Police Department Baltimore County Police Department Baltimore County Sheriff Office Baltimore County Sheriff's Office

Baltimore Police Baltimore Police

Baltimore Police Department Baltimore Police Dept

Baltimore Police Traffic Section Berlin Police Department

BPD BPD BPD

Brunswick City Police

Calvert County State's Attorney s Office

Caroline Co. Sheriff's Dept.
Caroline County Drug Task Force
Carroll County State's Attorney
Cecil County Sheriff's Office
Cecil County Sheriff's Office
Centreville Police Department
Ocean City Police Dept.
Charles County Sheriff's Office
Chestertown Police Department
Circuit Court Baltimore City
Circuit Court for Baltimore City
Circuit Court for Baltimore City
Circuit Court for Calvert County

Circuit Court for Prince George's County, Maryland

Civilian Employee, Maryland State Police

Crisfield Police Department

Circuit Court For Charles County

Defense Attorney

Delmar Police Department

District Court

District Court of Maryland

Dorchester Sheriff DPSCS -IIU

Frederick Co. Sheriff's Office Frederick Police Department Frostburg State University Police Fruitland Police Dept Greenbelt Police Department

HABC

Hagerstown City Fire Marshal's Office

Hagerstown City Police Dept. Hampstead Police Department Harford County Sheriff's Office Harford County Sheriff's Office

Harford County State's Attorney's Office Howard County Circuit Court Maryland Howard County Police Department Howard County Sheriff's Office

Howard County State's Attorney's Office

Kent County Sheriff's Office Kent County State's Attorney Landover Hills Police Department

Laurel Police Department
Manchester Police Department

Maryland Correctional Institution-Hagerstown Office of the Public Defender for Montgomery

County

Maryland State Police Maryland State Police

Maryland State Police - C3I Unit
Maryland State Police - Princess Anne
Maryland Transportation Authority Police
Maryland-National Capital Park Police

MD - DNR - SFPS - Rocks / Susquehanna State

Parks

MD DNR Forest & Parks
MD Natural Resources Police

MNCPPC

Montgomery County Department of Police

Montgomery County Fire/ Explosive Investigations

Montgomery County Police

Montgomery County Sheriff's Office

Montgomery County State's Attorneys Office

Morgan State University Police Mount Rainier Police Department

MSP - WCBI

MSP Easton Barrack "I" MSP, DEC, C3I Narcotics

NED/BPD

Ocean City Fire Marshals Office Ocean City Police Department Office of the Chief Medical Examiner

Office of the Public Defender Office of the Public Defender

Office of the State Fire Marshal Office of the State's Attorney

PGPD

Prince George's County Community College

Prince George's County Fire Invest.
Prince George's County Police
Prince George's County Police
Prince George's County Police Dept.
Prince George's Ctv. State's Attv.'s Office

Princess Anne Police Department

Private Defense

Queen Anne's County Drug Task Force

Queen Anne's Sheriff's Office

Rockville City Police

Roxbury Correctional Institution Salisbury Police Department Salisbury University Police Dept.

SAO SAO SAO

SAO PGC

Snow Hill Police Department

Somerset Co. State's Attorney's Office Somerset County Sheriff's Office Somerset County Sheriff's Office

Southeast District

Special Investigations/Child Abuse St. Marys County Sheriff's Office State Fire Marshall's Office State's Attorney's Office State's Attorney's Office

State's Attorney's Office State's Attorney's Office

States Attorneys Office for Baltimore County

TAC/Traffic/BPD

Takoma Park Police Department Taneytown Police Department

U.S Attorney's Office

University of MD Police Dept. University of Maryland, Baltimore Washington County Narcotics Task Force Washington County Sheriff's Office

WATF/BPD

Westminster Police Department Worcester Co. Sheriff's Office

4.8 Selected laboratory survey data

4.8.1 4.8.1 Casework data

Laboratories were asked to list the number of cases received and analyzed in each testing area listed below. They were also allowed to list the number of items received and analyzed. Turnaround time was defined as the average number of days from evidence receipt to case closure. The values in this section below are compiled from all eleven labs.

DNA with subjects comparison

DNA with subjects for comparison

Cases received 363 Cases analyzed 357 Items received 283

Items analyzed 490

Turnaround time Range of 1 day up to 315 days

DNA without subjects for comparison

Cases received 14
Cases analyzed 14
Items received 15
Items analyzed 27

Turnaround time

Range of 2-3 months up to 360 days

DNA Database

Cases received 11,127
Cases analyzed N/A
Items received N/A
Items analyzed N/A

Turnaround time One response of approx one month

Forensic Biology Screening

Cases received 2,182
Cases analyzed 3,073
Items received 2,715
Items analyzed 3,000

Turnaround time Range of 1 day up to 371 days

Controlled substance

Cases received 61,756 Cases analyzed 58,214 Items received 350,388 Items analyzed 153,691

Turnaround time Varied responses of "as requested, prioritized" and ranges of 5.9 to 35 days

Firearms & Toolmarks

Cases received 8,547 Cases analyzed 7,013 Items received 14,813 Items analyzed 13,736

Turnaround time Response of prioritized and ranges of 13.58 to 116 days

Firearms database (Drugfire and/orIBIS)

Cases received 3,892/1,333 Cases analyzed 4,415/1,333

Items received 970 Items analyzed 278

Turnaround time Range of 2 weeks to 116 days

Transfer trace

Cases received 294
Cases analyzed 330
Items received 252
Items analyzed 201

Turnaround time Response of prioritized and range of 3 weeks to 240 days

Fire debris

| Cases received | 250 |
|----------------|-----|
| Cases analyzed | 190 |
| Items received | 168 |
| Items analyzed | 168 |

Turnaround time Range of 5 to 60 days

Latent prints

| Cases received | 18,491 |
|----------------|--------|
| Cases analyzed | 18,307 |
| Items received | 43,958 |
| Items analyzed | 15,907 |

Turnaround time Range of 5 - 30 days

Latent prints - database input (AFIS)

| Cases received | 26,515 |
|----------------|--------|
| Cases analyzed | 19,310 |
| Items received | 5,946 |
| Items analyzed | 65 262 |

Turnaround time Range of 13 days up to 10 weeks

Explosive residue

| Cases received | 14 |
|----------------|----|
| Cases analyzed | 4 |
| Items received | 4 |
| Items analyzed | 4 |

Turnaround time Range of 14 to 180 days

Criminal toxicology (e.g. urine drug screens)

Cases received 3
Cases analyzed 3
Items received 0
Items analyzed 0

Turnaround time 180 days

Post-mortem toxicology

Cases received 0
Cases analyzed 0
Items received 0
Items analyzed 0
Turnaround time 0

Blood-alcohol

Cases received 873 Cases analyzed 912

| Items received | 0 |
|-----------------|--------|
| Items analyzed | 0 |
| Turnaround time | 5 days |

Questioned documents

| Cases received | 451 |
|----------------|--------|
| Cases analyzed | 425 |
| Items received | 11,805 |
| Items analyzed | 11,655 |

Turnaround time Range of 4-31 days

Impressions (footwear, tireprints, etc.)

| Cases received | 253 |
|----------------|-----|
| Cases analyzed | 254 |
| Items received | 283 |
| Items analyzed | 283 |

Turnaround time Range of 8 to 30.1 days

Computer/Digital evidence

| Cases received | 244 |
|----------------|-----|
| Cases analyzed | 226 |
| Items received | 545 |
| Items analyzed | 321 |

Turnaround time Range of 3 weeks up to 3 months

4.8.2 Factors preventing better service

The laboratories were asked to "choose the greatest factor in preventing better service delivery in each area below." Answers of "none" generally indicate that a laboratory does not provide the service.

DNA with subjects

| • | Count | Percentage Answered |
|-------------------------------|-------|---------------------|
| Lack of current equip. | 0 | 0.0% |
| Lack of expertise or training | 4 | 40.0% |
| Demand greater than capacity | 0 | 0.0% |
| Space limitation | 0 | 0.0% |
| Staff | 2 | 20.0% |
| None | 4 | 40.0% |

DNA without subjects

| Count | Percentage Answered |
|-------|---------------------|
| 0 | 0.0% |
| 3 | 33.3% |
| 0 | 0.0% |
| 0 | 0.0% |
| 1 | 11.1% |
| 5 | 55.6% |
| | 0 3 0 0 |

DNA database

| | Count | Percentage Answered |
|-------------------------------|-------|---------------------|
| Lack of current equip. | 1 | 10.0% |
| Lack of expertise or training | 1 | 10.0% |
| Demand greater than capacity | 0 | 0.0% |
| Space limitation | 0 | 0.0% |
| Staff | 1 | 10.0% |
| None | 7 | 70.0% |

Forensic biology screening

| | Count | Percentage Answered |
|-------------------------------|-------|---------------------|
| Lack of current equip. | 0 | 0.0% |
| Lack of expertise or training | l | 10.0% |
| Demand greater than capacity | 2 | 20.0% |
| Space limitation | 2 | 20.0% |
| Staff | 2 | 20.0% |
| None | 3 | 30.0% |

Controlled substance

| | Count | Percentage Answered |
|-------------------------------|-------|---------------------|
| Lack of current equip. | 1 | 10.0% |
| Lack of expertise or training | 0 | 0.0% |
| Demand greater than capacity | 3 | 30.0% |
| Space limitation | 3 | 30.0% |
| Staff | 2 | 20.0% |
| None | 1 | 10.0% |
| | | |

Firearms & Toolmarks

| | Count | Percentage Answered |
|-------------------------------|-------|---------------------|
| Lack of current equip. | 0 | 0.0% |
| Lack of expertise or training | 1 | 10.0% |
| Demand greater than capacity | 3 | 30.0% |
| Space limitation | 0 | 0.0% |
| Staff | 1 | 10.0% |
| None | 5 | 50.0% |

Firearms database

| | Count | Percentage Answered |
|-------------------------------|-------|---------------------|
| Lack of current equip. | 1 | 11.1% |
| Lack of expertise or training | 1 | 11.1% |
| Demand greater than capacity | 1 | 11.1% |
| Space limitation | 0 | 0.0% |
| Staff | 1 | 11.1% |
| None | 5 | 55.6% |

Transfer trace

| • | Count | Percentage Answered |
|-------------------------------|-------|---------------------|
| Lack of current equip. | 0 | 0.0% |
| Lack of expertise or training | 1 | 10.0% |
| Demand greater than capacity | 2 | 20.0% |
| Space limitation | 0 | 0.0% |

| Staff | 2 | 20.0% |
|-------------------------------|----------|---------------------|
| None | 5 | 50.0% |
| | | |
| Fire debris | | |
| i ne deoris | Count | Domontona Anguard |
| | Count | Percentage Answered |
| Lack of current equip. | 0 | 0.0% |
| Lack of expertise or training | 1 | 10.0% |
| Demand greater than capacity | 1 | 10.0% |
| Space limitation | 0 | 0.0% |
| Staff | 3 | 30.0% |
| | 5 | |
| None | 3 | 50.0% |
| | | |
| Latent prints | | |
| | Count | Percentage Answered |
| Lack of current equip. | 1 | 11.1% |
| Lack of expertise or training | 0 | 0.0% |
| | | |
| Demand greater than capacity | 1 | 11.1% |
| Space limitation | 0 | 0.0% |
| Staff | 3 | 33.3% |
| None | 4 | 44.4% |
| | • | |
| Latent print database input | | |
| Latent print database input | ^ | D |
| | Count | Percentage Answered |
| Lack of current equip. | 0 | 0.0% |
| Lack of expertise or training | 0 | 0.0% |
| Demand greater than capacity | 1 | 11.1% |
| Space limitation | Ò | 0.0% |
| Staff | 3 | 33.3% |
| | 5 | |
| None | 5 | 55.6% |
| | | |
| Explosive residue | | |
| | Count | Percentage Answered |
| Lack of current equip. | 1 | 10.0% |
| Lack of expertise or training | 1 | 10.0% |
| | Ô | 0.0% |
| Demand greater than capacity | | |
| Space limitation | 0 | 0.0% |
| Staff | 2 | 20.0% |
| None | 6 | 60.0% |
| | | |
| Criminal toxicology | | |
| Criminal toxicology | Count | Percentage Answered |
| 11 -6 | _ | _ |
| Lack of current equip. | 1 | 10.0% |
| Lack of expertise or training | 1 | 10.0% |
| Demand greater than capacity | 0 | 0.0% |
| Space limitation | 0 | 0.0% |
| Staff | 0 | 0.0% |
| None | 8 | 80.0% |
| | J | UU1070 |
| D-4 | | |
| Post-mortem toxicology | _ | |
| | Count | Percentage Answered |
| Lack of current equip. | 0 | 0.0% |
| - • | | |

| Lack of expertise or training | 1 | 11.1% |
|-------------------------------|---|-------|
| Demand greater than capacity | 0 | 0.0% |
| Space limitation | 0 | 0.0% |
| Staff | 0 | 0.0% |
| None | 8 | 88.9% |

Blood alcohol

| | Count | Percentage Answered |
|-------------------------------|-------|---------------------|
| Lack of current equip. | 0 | 0.0% |
| Lack of expertise or training | 1 | 11.1% |
| Demand greater than capacity | 0 | 0.0% |
| Space limitation | 0 | 0.0% |
| Staff | 1 | 11.1% |
| None | 7 | 77.8% |

Questioned documents

| 4 | | |
|-------------------------------|-------|---------------------|
| | Count | Percentage Answered |
| Lack of current equip. | 0 | 0.0% |
| Lack of expertise or training | 1 | 11.1% |
| Demand greater than capacity | 0 | 0.0% |
| Space limitation | 0 | 0.0% |
| Staff | 1 | 11.1% |
| None | 7 | 77.8% |
| | | |

Impressions

| | Count | Percentage Answered |
|-------------------------------|-------|---------------------|
| Lack of current equip. | 1 | 11.1% |
| Lack of expertise or training | 1 | 11.1% |
| Demand greater than capacity | 0 | 0.0% |
| Space limitation | 0 | 0.0% |
| Staff | 1 | 11.1% |
| None | 6 | 66.7% |
| | | |

Computer/Digital evidence

| Count | Percentage Answered |
|-------|---------------------|
| 2 | 20.0% |
| 2 | 20.0% |
| 0 | 0.0% |
| 0 | 0.0% |
| 2 | 20.0% |
| 4 | 40.0% |
| | 2 2 0 0 |

Overall ratings

| - · · · · · · · · · · · · · · · · · · · | Count | Percentage Answered (other than "none") |
|---|-------|---|
| | _ | ` ` ` |
| Lack of current equip. | 9 | 11.7% |
| Lack of expertise or training | 21 | 27.3% |
| Demand greater than capacity | 14 | 18.2% |
| Space limitation | 5 | 6.5% |
| Staff | 28 | 36.4% |
| None | 95 | N/A |

4.8.3 **Equipment conditions**

The laboratories were asked to "Within your laboratory, how would you generally rate the quality of the following instrumentation presently in use?"

Computers

| | Count | Percentage Answered |
|--------------------------------|-------|---------------------|
| N/A | 0 | 0.0% |
| Obsolete | 0 | 0.0% |
| Old, but serviceable | 2 | 25.0% |
| Modern, little room to improve | 6 | 75.0% |
| State of the art | 0 | 0.0% |

FT-IR spectrophotometer

UV/Visible spectrophotometer

| | Count | Percentage Answered |
|--------------------------------|-------|---------------------|
| N/A | 1 | 11.1% |
| Obsolete | 2 | 22.2% |
| Old, but serviceable | 2 | 22.2% |
| Modern, little room to improve | 3 | 33.3% |
| State of the art | 1 | 11.1% |

Gas chromatograph

| | Count | Percentage Answered |
|--------------------------------|-------|---------------------|
| N/A | 2 | 25.0% |
| Obsolete | 0 | 0.0% |
| Old, but serviceable | 2 | 25.0% |
| Modern, little room to improve | 3 | 37.5% |
| State of the art | 1 | 12.5% |

Gas chromatograph - Mass spectrometer

| | Count | Percentage Answered |
|--------------------------------|-------|---------------------|
| N/A | 0 | 0.0% |
| Obsolete | 0 | 0.0% |
| Old, but serviceable | 0 | 0.0% |
| Modern, little room to improve | 6 | 66.7% |
| State of the art | 3 | 33.3% |

DNA Analysis

| DNA Analysis | | |
|----------------------|-------|---------------------|
| | Count | Percentage Answered |
| N/A | 3 | 33.3% |
| Obsolete | 0 | 0.0% |
| Old, but serviceable | 0 | 0.0% |

| Modern, little room to improve | 4 | 44.4% |
|--------------------------------|---|-------|
| State of the art | 2 | 22.2% |

Stereomicroscopes

| , | Count | Percentage Answered |
|--------------------------------|-------|---------------------|
| N/A | 0 | 0.0% |
| Obsolete | 0 | 0.0% |
| Old, but serviceable | 6 | 66.7% |
| Modern, little room to improve | 2 | 22.2% |
| State of the art | 1 | 11.1% |

Compound microscopes

| | Count | Percentage Answered |
|--------------------------------|-------|---------------------|
| N/A | 1 | 11.1% |
| Obsolete | 0 | 0.0% |
| Old, but serviceable | 4 | 44.4% |
| Modern, little room to improve | 3 | 33.3% |
| State of the art | 1 | 11.1% |

Comparison microscopes

| | Count | Percentage Answered |
|--------------------------------|-------|---------------------|
| N/A | 2 | 25.0% |
| Obsolete | 0 | 0.0% |
| Old, but serviceable | 3 | 37.5% |
| Modern, little room to improve | 3 | 37.5% |
| State of the art | 0 | 0.0% |

Scanning electron microscope

| | Count | Percentage Answered |
|--------------------------------|-------|---------------------|
| N/A | 6 | 75.0% |
| Obsolete | 0 | 0.0% |
| Old, but serviceable | 1 | 12.5% |
| Modern, little room to improve | 1 | 12.5% |
| State of the art | 0 | 0.0% |
| | | |

Cameras

| | Count | Percentage Answered |
|--------------------------------|-------|---------------------|
| N/A | 2 | 22.2% |
| Obsolete | 1 | 11.1% |
| Old, but serviceable | 2 | 22.2% |
| Modern, little room to improve | 3 | 33.3% |
| State of the art | 1 | 11.1% |

Digital imaging

| | Count | Percentage Answered |
|--------------------------------|-------|---------------------|
| N/A | 3 | 37.5% |
| Obsolete | 0 | 0.0% |
| Old, but serviceable | 0 | 0.0% |
| Modern, little room to improve | 2 | 25.0% |
| State of the art | 3 | 37.5% |
| | | |

Other

| | Count | Percentage Answered |
|--------------------------------|-------|---------------------|
| N/A | 3 | 50.0% |
| Obsolete | 2 | 33.3% |
| Old, but serviceable | 0 | 0.0% |
| Modern, little room to improve | 0 | 0.0% |
| State of the art | 1 | 16.7% |

Others listed as obsolete - crime scene investigation equipment

Overall ratings

| | Count | Percentage Answered (other than "N / A" |
|--------------------------------|-------|---|
| N/A | 23 | N/A |
| Obsolete | 6 | 7.0% |
| Old, but serviceable | 24 | 27.9% |
| Modern, little room to improve | 41 | 47.7% |
| State of the art | 15 | 17.4% |

Comment: 13 of the 24 "Old, but serviceable" responses come from the 3 microscope categories.

4.8.4 Communications

The laboratories were asked "Using communications and effectiveness in achieving good quality service, please rate the following:"

Relations with crime scene investigators

| | Count | Percentage Answered |
|-----------|-------|---------------------|
| Very poor | 0 | 0.0% |
| Poor | 0 | 0.0% |
| Nominal | 0 | 0.0% |
| Good | 4 | 44.4% |
| Very Good | 5 | 55.6% |

Relations with prosecutor's office

| | Count | Percentage Answered |
|-----------|-------|---------------------|
| Very poor | 0 | 0.0% |
| Poor | 1 | 11.1% |
| Nominal | 1 | 11.1% |
| Good | 2 | 22.2% |
| Very Good | 5 | 55.6% |

Relations with other laboratories providing forensic services to the state

| | Count | Percentage Answered |
|-----------|-------|---------------------|
| Very poor | 0 | 0.0% |
| Poor | 0 | 0.0% |
| Nominal | 1 | 11.1% |
| Good | 4 | 44.4% |
| Very Good | 4 | 44.4% |

4.8.5 Gaps in service provision

The laboratories were asked "For each crime type listed below, and considering the following tests, which is your laboratory likely able to obtain in sufficient time to meet legal and time frame requirements necessary for effective investigation and prosecution?" Following is a selection of responses indicating gaps in service.

Trace Evidence Analysis:

Homicide

| | Count | Percentage Answered |
|---------|-------|---------------------|
| Unknown | 2 | 20.0% |
| None | 2 | 20.0% |
| Some | 2 | 20.0% |
| Most | 2 | 20.0% |
| All | 2 | 20.0% |

Assault and robbery

| | Count | Percentage Answered |
|---------|-------|---------------------|
| Unknown | 2 | 20.0% |
| None | 4 | 40.0% |
| Some | 2 | 20.0% |
| Most | 0 | 0.0% |
| All | 2 | 20.0% |

Rape and sexual assault

| • | Count | Percentage Answered |
|---------|-------|---------------------|
| Unknown | 2 | 20.0% |
| None | 4 | 40.0% |
| Some | 0 | 0.0% |
| Most | 2 | 20.0% |
| All | 2 | 20.0% |

DNA Analysis:

Homicide

| | | Count | Percentage Answered |
|---------|---|-------|---------------------|
| Unknown | 1 | 10.0% | _ |
| None | 3 | 30.0% | |
| Some | 1 | 10.0% | |
| Most | 0 | 0.0% | |
| All | 5 | 50.0% | |

Assault and robbery

| | • | Count | Percentage Answered |
|---------|---|-------|---------------------|
| Unknown | 1 | 10.0% | |
| None | 3 | 30.0% | |
| Some | 3 | 30.0% | |
| Most | 1 | 10.0% | |
| All | 2 | 20.0% | |

Rape and sexual assault

| | | Count | Percentage Answered |
|---------|---|-------|---------------------|
| Unknown | 1 | 10.0% | _ |
| None | 3 | 30.0% | |
| Some | 1 | 10.0% | |
| Most | 2 | 20.0% | |
| All | 3 | 30.0% | |
| | | | |

Drug Analysis:

Possession of controlled substances

| | Count | Percentage Answered |
|---------|-------|---------------------|
| Unknown | 0 | 0.0% |
| None | 2 | 18.2% |
| Some | 0 | 0.0% |
| Most | 5 | 45.5% |
| All | 4 | 36.4% |

The laboratories were asked, "If your laboratory is unable to analyze all of the evidence submitted to it, indicate the likelihood of analysis for the following types of cases and evidence:"

Possession of controlled substances

| Unlikely to Be Analyzed Likely to Be Analyzed Certain to Be Analyzed | Count 0 3 6 | Percentage Answered 0.0% 33.3% 66.7% |
|--|-------------|--------------------------------------|
| Cases involving firearms | | |
| _ | Count | Percentage Answered |
| Unlikely to Be Analyzed | 1 | 14.3% |
| Likely to Be Analyzed | 2 | 28.6% |
| Certain to Be Analyzed | 4 | 57.1% |
| Rape and sexual assault | | |
| | Count | Percentage Answered |
| Unlikely to Be Analyzed | 1 | 14.3% |
| Likely to Be Analyzed | 4 | 57.1% |
| Certain to Be Analyzed | 2 | 28.6% |

Latent prints from homicide

| int Percentage Answered |
|-------------------------|
| 14.3% |
| 0.0% |
| 85.7% |
| |

46-5 - Latent prints from other crimes

| Count | Percentage Answered |
|-------|---------------------|
| 1 | 14.3% |
| 3 | 42.9% |
| 3 | 42.9% |
| | 1 3 |

Driving under the influence (DUI)

| Question | Count | Percentage Answered |
|-------------------------|-------|---------------------|
| Unlikely to Be Analyzed | 2 | 40.0% |
| Likely to Be Analyzed | 2 | 40.0% |
| Certain to Be Analyzed | 1 | 20.0% |

4.9 Service provided by other agencies

Law enforcement survey respondents were asked to list forensic services that their agency provided. Answers below do not include agencies with crime labs.

| Choice | #of Agencies represented |
|---|--|
| Marijuana analysis | 19 |
| Other drug analysis | 2 |
| Crime scene analysis | 11 |
| Latent print comparison | 6 |
| AFIS entry of latent prints | 5 |
| Firearms examination | 2 |
| Examination of items for biological stains | 1 |
| Direct submission of samples to private DNA | 4 (includes 3 agencies with crime labs |
| Shoe & tire pattern comparison | 3 not yet performing DNA) |
| Computer evidence | 4 |

These figures come directly from the Law Enforcement Stakeholder Survey, and have not been confirmed. The agencies reporting service provision are found in the raw database delivered to the Maryland State Police with this report.

4.10 References

- 1. American Society of Crime Laboratory Directors. "Recommendations for Crime Laboratory Space Needs". Crime Laboratory Digest, Volume 19, No.2, April 1992.
- 2. Forensic Laboratories: Handbook for Facility Planning, Design, Construction, and Moving. U.S. Department of Justice publication NCJ 168106, 1998.
- 3. California Bureau of State Audits Forensic Laboratories, December 1998 97025. The report is available at www.bsa.ca.gov/bsa/pdfs/97025.pdf
- 4. Frye v. United States, 54 App. D. C. 46, 47, 293 F. 1013, 1014
- 5. Daubert v. Merrell Dow Pharmaceuticals (92-102), 509 U.S. 579 (1993).
- 6. American Board of Criminalistics. www.criminalistics.com/abc/diplomates2000.pdf as of 11 August 2001.

- 7. Personal communication. Paul Ferrara, Director, Virginia Division of Forensic Science, August 2001.
- 8. Personal communication. Robert Conely, Laboratory Division Commander, Indiana State Police, August 2001.

ATTACHMENT 5 (Maryland Statewide Forensic Science Task Force Questionnaire)

Maryland Statewide Forensic Science Task Force Questionnaire

Laboratory's Responding: (Services provided as of October 01, 2000)

| Maryland State Police Crime Laboratory Baltimore City Police Crime laboratory Baltimore County Police Crime Laboratory Montgomery County Police Crime Laboratory Prince George's County Police Crime Laboratory Anne Arundel County Police Crime Laboratory Hagerstown Police Department Crime Laboratory Docean City Police Department Crime laboratory |
|--|
| Please check the forensic services/examinations your laboratory provides |
| _8_ Drug Analysis7_ Latent Prints5_ AFIS System |
| _6_ Footwear/Tire Impressions5_ Firearms/Toolmarks |
| _5_ Drugfire/IBIS6_ Serology0_ RFLP DNA |
| _4_ PCR DNA5_ STR DNA3_ Bloodstain Pattern Interpretation |
| _6_ Forensic Photography2_ Questioned Documents |
| 3_ Trace Evidence2_ GSR Examinations7_ Crime Scene Processing |
| 0_ Toxicology1_ Ethyl Alcohol3_ Computer Crimes |
| _2_ Other (please list) Breathalyzer |
| 1_ Other (please list) Fire Debris Analysis |
| 2_ Other (please list) Digital Imaging |
| I Laboratory Information Management System (LIMS) |
| Does your laboratory currently use a LIMS system?3_Yes6_ No |
| f yes, what is the name of your system: All yes responses currently using Porter-Lee Bar- Coded Evidence Analysis, Statistics and Tracking (BEAST System) |
| Are you satisfied with the system you are currently using (please explain, use additional sheets if necessary) |
| 1) Yes) High level of functionality and vendor is responsive to user needs 2) Yes) But have a limited amount of time to develop full capabilities 3) No) System is full of bugs and not user friendly |

Maryland Statewide Forensic Science Task Force Questionnaire

| LIMS (continued) |
|--|
| Is your laboratory "locked-in" to using only your current LIMS system?3_Yes No |
| If yes, please explain: |
| System-wide throughout police agency Plan to extend system to each precinct Grant funding used to pay for system |
| III. Training |
| What training resources are you current using? (Use additional sheets if necessary) |
| In-house training, FBI, DEA, Commercial vendors, Scientific organizations (AAFS, MAAFS, IAI, ASCLD, AFTE) |
| What are your current training concerns? |
| Adequate funding for training and continuing education of forensic experts There is a nationwide shortage of some forensic experts such as firearms/toolmark examiners, questioned document examiners, and trace evidence examiners. This requires extensive in-house training which requires time and resources. A need for more "hands-on" training Need adequate staffing to allow examiners to attend training classes/seminars Re-training of examiners due to personnel turnover |
| Would your laboratory be interested in participating in a unified "statewide" training program? |
| 8_ Yes No |
| IV. Personnel |
| Do you feel your laboratory has adequate staffing to support the law enforcement agencies you serve?2_Yes6_No |
| If no, please explain: |
| Tremendous backlog problems Increased case-loads with no manpower increases Vacant "open" positions which are not immediately filled Manpower shortages due to funding constraints Could offer more services if more financial/manpower resources were available Not enough physical space for adequate (or current) staffing |

Maryland Statewide Forensic Science Task Force Questionnaire

V. Equipment

What are some of the equipment concerns within your laboratory?

The ability to obtain needed equipment.

Limited budgets make replacement of equipment very difficult on a timely basis.

Some laboratory equipment is so old that replacement parts are not available.

The ability to obtain maintenance contracts on major equipment items.

Limited space to locate equipment within lab.

VI. Salaries

What (if any) are some of the salary concerns within your laboratory?

Salary levels are too low, especially when compared to the degree of education/experience required to perform the job duties.

Forensic scientists within the state laboratories are required to be proficient technical investigators for their host police agencies. They are an integral part of our criminal justice system offering expert testimony which is scrutinized during legal proceedings. They instruct police academies and in-service training programs. They work under tremendous case-load pressures assuring that no mistakes are made. Throughout the entire state, the salaries of forensic scientists have been eclipsed by sworn police personnel who have the ability to lobby and negotiate on their own behalf.

Not enough pay grades/steps to reward experienced personnel.

Must be competitive with salaries or lose experienced personnel and newly trained staff.

VII. Laboratory Accreditation:

Is your laboratory ASCLD/LAB accredited? __2_Yes ____ No

If no, what resources would be required by your laboratory in order to become accredited? (Use additional sheets if necessary)

Additional manpower to perform accreditation duties

Facility upgrades

2 additional laboratories are working toward ASCLD accreditation

ATTACHMENT 6 (Maryland Crime Scene Evidence Personnel Statewide Survey Results)

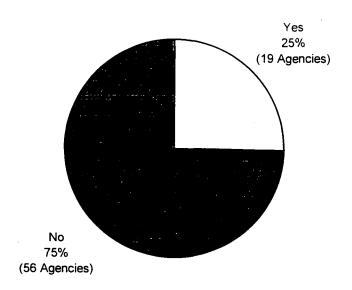
MARYLAND CRIME SCENE EVIDENCE PERSONNEL

STATE-WIDE SURVEY RESULTS

NOVEMBER 2000

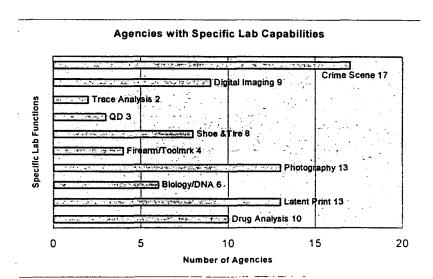
1-Does your department have its own crime lab? Yes=19 No=56

Agencies with Crime Lab Capabilities



If yes, what fully operational units does the lab have?

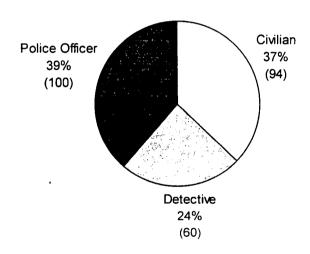
| Drug Analysis | 10 | Latent Prints | 13 |
|-----------------|----|--------------------|-----------|
| QD | 3 | Trace Analysis | 2 |
| Biology/DNA | 6 | Photography | 13 |
| Digital Imaging | 9 | Firearms/Toolmarks | 4 |
| Shoe & Tire | 8 | Crime Scene Unit | 17 |



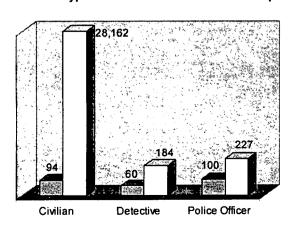
2-How many individuals are assigned to the evidence collection/crime scene processing function for major crime scenes?

| | Civilian | <u>Detective</u> | Pol. Off. |
|--------------|----------|------------------|-----------|
| # Full time | 90 | 50 | 85 |
| # Part time | 8 | 20 | 30 |
| Calls/year | 28,162 | 184 | 227 |
| Calls/ind/yr | 300 | 3 | 2 |

Personnel Assigned to Crime Scene Function

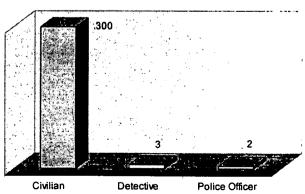


Personnel Assigned to Crime Scene Function Type of Personnel / Calls for Service per Year



■# Personnel
□ Calls/yr

Annual Calls for Service per Indvidual By Type of Personnel



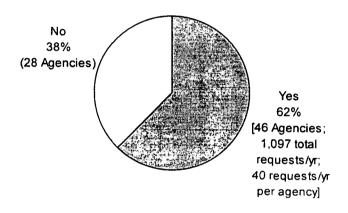
3-Do you use another agency to process crime scenes?

Yes **46**

No 28

Average number of requests per year 1,097 Number of requests per year per agency 40

Departments Using Outside Agencies to Process Crime Scenes



If yes, which agency.

Maryland State Police

Local & County Police

State Fire Marshal

Types of services provided:

Fingerprints
Crime Scene Inv.

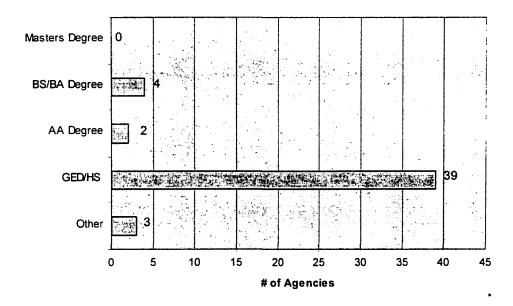
Drug Analysis Photography

Arson & Bombings

4-What are the minimum educational requirements for assignment to the Evidence Collection/Crime Scene function?

GED/HS 39 A.A. degree 2 B.S./B.A. degree 4 Master's degree 0 Other 3

Minimum Education Requirements



What are the minimum work experience requirements for assignment to the evidence collection/crime scene function?

| None | 6 | One year | 10 |
|-----------|----|-------------|----|
| Two years | 11 | Three years | 12 |
| Other | 5 | | |

5-What initial training is required upon assignment to this function?

0 hours to 3 months

How is this training accomplished?

In-House 38% Outside Agency 47%

Commercial School 19%

Is there annual in-service training requirements for these individuals? (Does not include MPTC training for sworn personnel)

Yes 18%

No **82%**

If yes, number of hours per year.

4-40 hours

A- 4 hrs-1

B- 24 hrs-1

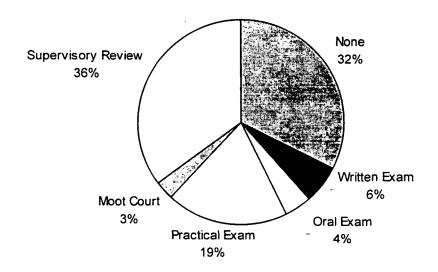
C- 20 hrs-2

D- 40 hrs-3

6-Are your crime scene evidence technicians tested prior to handling actual casework?

| Yes | 68% | No 3 | 2% |
|------------|-----|-----------|----|
| Written | 4 | Oral | 3 |
| Supv. Rev. | 22 | Practical | 12 |
| Moot Court | 2 | None | 20 |

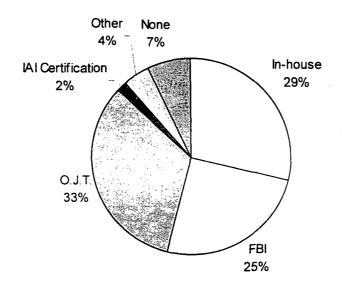
Testing Conducted Prior to Performing Casework



7-What specialized training is required of your crime scene evidence technicians?

| In-house crime scene training program | 21 |
|---|------|
| FBI or other outside agency cst program | 18 |
| OJT with an experienced crime scene tech | 24 |
| IAI Certification | 1 |
| Other (MPTC, Glauser Lee, Digital Imaging | g) 3 |
| None | 5 |

Training Required for Crime Scene Personnel



8-Does your agency have a dedicated budget for crime scene personnel training?

Yes

13%

No

87%

If yes, what is the annual allotment? \$1,500-\$20,000

What approximate percentage of the total agency training budget does this represent?

<1%-40%

9-Is any crime scene investigation training provided to all of your agency's sworn officers during:

| Police Academy | 45% |
|-------------------------------|-----|
| Specialized Training Sessions | 25% |
| In-service Training | 30% |
| None | 0% |

(Some agencies have training in a combination of the listed categories, ie police academy and yearly inservice)

10-Do you have any type of procedure manual or SOP for crime scene processing?

Yes

57%

No

43%

11-How many of your agency's crime scene technicians belong to any professional organizations? 32%

Total personnel listed by reporting agencies=254 Number belonging to professional organizations=81

12-Do any laboratory analysts respond to crime scenes to assist crime scene processing personnel?

Yes 19% No 41% N/A 40%

13-Would your agency be interested in a formalized training course to cover the basic training requirements of a Crime Scene Evidence Technician?

Yes 92% No 18%

ATTACHMENT 7 (Crime Scene Module)

Crime Scene Module

Purpose:

Physical evidence has the potential to play a critical role in the overall investigation and resolution of a suspected criminal act. The crime scene investigation and the recognition, collection and preservation of probative evidence must be carried out in a manner to insure that a thorough application of current evidence handling methodologies has been employed. This will provide timely distribution of evidence to the appropriate forensic discipline for laboratory evaluation and analysis. Well-trained and well equipped crime scene personnel must know what to do in each situation. This can be best accomplished through compliance with minimum personnel, equipment, education and training standards.

Personnel:

I-Minimum requirements:

Crime scene personnel must have:

- General knowledge of basic scientific principles as they apply to the testing of physical evidence
- General knowledge of proper evidence identification, documentation, collection, and preservation techniques
- Specific knowledge of collection methods, procedures and equipment used at crime scenes
- General knowledge of the types of laboratory examinations individual evidence items can undergo
- The ability to testify as an expert witness in courts of law

To accomplish this, crime scene personnel should possess the following minimum qualifications:

- A bachelor's degree from an accredited college or university with sufficient major coursework in Criminal Justice or a Natural Science
- Completion of an initial training program
- Six months On the Job Training or supervised experience
- Completion of a competency test after training
- Annual in-service training
- Attendance at an appropriate professional organization meeting once every three years
- Annual proficiency test

Recognizing that the crime scene investigation field has been in existence for many years, and has been manned by competent individuals with and without bachelor's degrees, the following "grandfather" clause exists.

Present crime scene investigators/technicians with a minimum of five years experience in processing crime scenes who are able to meet the performance standards of

the position as outlined above, shall be allowed to continue in their current capacity without meeting the minimum education and training requirements.

II-Hours of Operation:

Crime scene personnel are to be available 24 hours a day, 7 days a week. This can include on-call, emergency call back, and/or inter-jurisdictional/agency cooperation.

III-Testimony:

Crime scene personnel are to be provided with prerequisite training and skill development to qualify as an expert witness in any or all of the following:

- Processing crime scenes
- Reconstructing crime scenes
- Performing individual crime scene skills

Qualified crime scene expert witnesses must have their testimony monitored by a supervisory figure at least once a year when applicable.

IV-Salaries:

Salaries should be structured by the individual agency to reflect the individual's education, training and experience. In order to retain qualified personnel individual agencies should create career paths through promotion based on training, experience and proficiency. This career path might include the following:

- Trainee-from hire to successful completion of the competency test and 1-2 years experience
- Crime Scene Technician I-based on years of service and/or meritorious service
- Crime Scene Technician II-based on years of service and/or meritorious service beyond that of a Crime Scene Technician I
- Senior Crime Scene Technician (III)-based on years of service and/or meritorious service beyond that of a Crime Scene Technician II

V-Training:

An initial crime scene training course must be provided for all crime scene trainees. This course should be:

- Acceptable to the MPTC, ASCLD and other regulatory organizations associated with and proficient in crime scene processing
- Standardized to fit small, intermediate and large police agencies with members responsible for processing crime scenes
- Provided at least once a year at a central location
- Designed to include lectures and practical exercises covering all major and frequently encountered crimes
- Taught by trained and recognized professionals in the many disciplines of Forensic Science including but not limited to:

- 1. Arson
- 2. Autopsy
- 3. Blood Spatter
- 4. Burglary
- 5. Bombings
- 6. Crime Scene Processing
 - A-Search
 - B-Recording:
 - 1-Note-taking
 - 2-Photography
 - 3-Sketching
 - 4-CAD
 - 5-Videotaping
 - C-Evidence
 - 1-Recognition
 - 2-Collection
 - 3-Packaging
 - 4-Transportation
 - 5-Preservation
- 7. Drug Analysis
- 8. Firearms/Toolmarks
- 9. Gunshot Residue
- 10. Homicide
- 11. Impression Evidence
- 12. Latent Fingerprints
- 13. Photography
- 14. Report Writing
- 15. Sexual Assault
- 16. Serology/DNA
- 17. Trace Evidence
 - A-Hair
 - B-Fiber
 - C-Glass
 - D-Paint
 - E-Soil
 - F-Tape
 - G-Rope/Cordage
- 18. Testimony (moot court)
- 19. Vehicle Investigations

ATTACHMENT 8 (Crime Scene Technician Training Module)

PROPOSED COURSE OUTLINE: TRAINING MODULE FOR CRIME SCENE TECHNICIANS

1. INTRODUCTION TO PROGRAM AND FACILITY

← Day 1

2. INTRODUCTION TO FORENSIC SCIENCE

- Legal aspects of physical evidence (Frye, Daubert, C.O.C., S/W....)
- History
- General principles (class charac./indiv. charac., Locard's principal....)
- Sciences involved
- ► Framework: Individual Department's Administrative Procedures

3. SAFETY

- Universal precautions, PPE
- ▶ Chemical hazards, biohazards, MSDS sheets
- Personal safety at scene (arson, bombs, structure, suspect)
- Clandestine lab awareness

4. QA/QC

- ► S.O.P. requirements
- Proficiency testing

5. THEORY AND TECHNIQUE OF CRIME SCENE INVESTIGATION ← Day 2

- First responder (secure scene, safety, victim, contamination sheet ...)
- Crime scene management
- Documentation (overall discussion: notes, sketch, photos)

6. DOCUMENTATION OF CRIME SCENE: NOTE TAKING, REPORTS

- Note taking
- Report writing

Draft: 5-10-01

MARYLAND INTERAGENCY CRIME SCENE EVIDENCE COMMITTEE

PROPOSED COURSE OUTLINE: TRAINING MODULE FOR CRIME SCENE TECHNICIANS

7. **DOCUMENTATION OF CRIME SCENE: SKETCHING**

- Practical: actual measurements and rough sketch in class,
- (hand in final sketch later)

8. **DOCUMENTATION OF CRIME SCENE: PHOTOGRAPHY (2 Days)** ← Day 3

Video

← Day 4

- Digital
- 35 mm
 - camera and flash controls, exposure, depth of field, film speed
 - flash (fill flash, bounce flash, painting with light)
 - specialized photography (alternate light sources, filters....)
 - 1:1 photos
 - use of scales
- Crime scene photos (overall, mid range, close up...)
- Image enhancement (digital, filters....)
- Practical: demonstrations and exercises

← Day 5

9. **FINGERPRINTS**

- History, introduction, types of prints, basic classification ← Day 5 ← Day 6
- Fingerprint comparison, identification, minutae

(½ day)

- Automated systems
- Processing and recovery (surfaces, powders, chemicals, etc.)
- Locating/documentation (i.e., Inside surface, etc.)
- Recovering fingerprints from skin
- Practical: demonstrations and exercises

PROPOSED COURSE OUTLINE: TRAINING MODULE FOR CRIME SCENE TECHNICIANS

| 10. | FIREARMS A | ND TOOLMARKS | ← Day 6 (½ day) |
|------|---------------|--|--------------------|
| | ▶ (| GSR | , |
| | • 1 | Muzzle to garment, patterns | |
| | | Collection methods and packaging | |
| | | Toolmark recovery: photography, casting | |
| | | (Practical: do w/shoe and tire) | |
| 11. | SHOE AND T | IRE | ← Day 7 |
| | . | Collection methods: photography, casting, lifts | |
| | | Practical: demonstrations and exercises (incl. Toolmarks also) | |
| 12. | TRACE EVID | ENCE | ← Day 8 |
| | • 1 | Hairs, fibers, glass, paint, soil, tape | |
| | | Physical matches | |
| | | Collection methods and packaging | |
| **** | ****** | ************************************** | ← Day 9 |
| 13. | ARSON | | ← Day 9 |
| | . | Overview | |
| | | Collection methods and packaging | |
| | | Practical: demonstrations/exercises | |
| 14. | EXPLOSIVES | 3 | ← Day 10 |
| | > (| Overview | |
| | . | Collection methods and packaging | |
| | | Practical: demonstrations/exercises | |

PROPOSED COURSE OUTLINE: TRAINING MODULE FOR CRIME SCENE TECHNICIANS

| 15. | SEROLOG | GY/DNA (2 days) | ← Day 11 |
|-----|---|--|----------|
| | *** | Overview (DNA Analysis methods, Database) Recognition (ALS, Luminol, Presumptive tests) Collection methods and packaging Search warrant issues Sexual assault & evidence collection kits | ← Day 12 |
| 16. | BLOOD S | PATTER (3 days) | ← Day 13 |
| | • | Recognition and documentation | ← Day 14 |
| | • | (not an in-depth, blood spatter class) | ← Day 15 |
| | • | Practical: demonstrations/exercises | |
| 17. | DEATH IN | VESTIGATION | ← Day 16 |
| | • | Pathology | |
| | • | Wounds | |
| | • | Autopsy (procedures, evidence) | |
| | • | Cause of death | |
| | • | Suicide | |
| | • | Crime Scene Case Review | |
| 18. | OVERVIE | W OF SPECIALIZED FORENSIC DISCIPLINES | |
| | • | Odontology | |
| | • | Entomology | |
| | • | Botany | |
| | • | Questioned Documents | |
| *** | ***** | ************************************** | ← Day 17 |
| | | | - |

PROPOSED COURSE OUTLINE: TRAINING MODULE FOR CRIME SCENE TECHNICIANS

| 19. | SPECIAL | CONSIDERATIONS | ← Day 17 (½ day) |
|-----|----------|---|---------------------------------|
| | • | Hit and Run | (5) |
| | • | Child Abuse | |
| | • | B/E | |
| | • | Robbery | |
| | • | Vehicle Processing | |
| | • | Field drug testing | |
| | • | Mass Disasters | |
| 20. | CRIME SO | CENE PRACTICAL | ← Day 17 (½ day) ← Day 18 |
| 21. | COURT T | ESTIMONY & ETHICS | ← Day 19 |
| | • | Court preparation | |
| | • | C.V. | |
| | • | Charts, Exhibits | |
| 22. | MOCK TR | RIAL | ← Day 20 |
| | • | (using evidence recovered in crime scene Practical) | |

ATTACHMENT 9 (Statewide Forensic Sciences Task Force Quality Assurance Survey)

QUALITY ASSURANCE SURVEY

| AGENCY | Anne Arundel County Police Department Crime Laboratory | Baltimore Police Department Laboratory Section | Baltimore County Police Department Forensic Services Section | Hagerstown Police Department Western Maryland Regional Crime Lab | Maryland State Police Crime Laboratory Division | Montgomery County Police Department Crime Laboratory | Ocean City Police Department | Office of the Chief Medical Examiner | Prince George's County Police Department Crime Laboratory |
|--|--|---|---|---|--|---|---------------------------------|---|--|
| I Does your laboratory have a Quality Control/Quality Assurance program? | YES | YES | YES Samo creation of tAF fills or in 1995, working steadily to coordinate and formalize all QA functions. Stiff numerous tasks to complete. | NO Standard "good laboratory practices" followed instrumental maintenance logs maintained. See responses to other questions. | YES | YES | YES | YES | YES |
| ta. Is the QA/QC program reviewed and if inocossary updated annually? | YES | YES | YES | NO . | YES | YES DNA only, not Drugs | N/A | YES | NO Setting up annual reviews |
| 2 Does your laboratory have a person instiguted to oversee the quality assurance of your laboratory? | Part-time | Fulllime | Fallune | NO | Fulttime | NO | Part-time | Part-time | Part-time |
| 2a If part time, how much time is spent on QA/QC? | 10-40% | N/A | . N/A | N/A | N/A | N/A | 1 hour/week | 50% | 10% |
| 26 Has this person received training in laboratory quality assurance? | YES | YES | YES | N/A | YES | N/A | NO | YES | YES |
| 2b Has this person received training in | YES | NO to attand NESTC and FBI anditing workshops | YI S | N/A | YES | N/A | NO | YES | NO However, each lab (Firearms, Drugs & DHA) Lab Manager has laken the FBI QA Course |
| Does your laboratory perform quality audits annually? | YES | МО | YES | YES | YES | YES DNA only | YES | NO | NO Not formerly |
| 4 Does your leboratory have a written quality assurance manual? | YES | YES | YES | NO | YES | YES DNA only | YES | YES | YES |
| 4a is the manual reviewed and if necessary updated annually? | YES | Prototype stage only | YES | NO | YES | | YES | YES | NO Still instituting OA/OC documents |
| 5 Does your taboratory have written standard operating procedures/protocols for each discipline performed in your laboratory? | YES | YES | YES | YES | YES | YES DNA only | YES | YES . | YES |
| Sa Are they reviewed and if necessary updated annually? | YES | NO not reviewed since 1996 being rewritten - annual review will be mandatory. | YES | YES | YES | YES DNA only | YES | YES | YES |
| 6 Does your laboratory have written training programs for each discipline? | YES | YES | YES | NO . | YES | N/A Minimum requirement is 3 yrs. experience in the specified discipline, previous training & experience documented by background investigation | МО | NO | YES |

| AGENCY | Anne Arundel County Police Department Crime Laboratory | Baltimore Police Department Laboratory Section | Baltimore County Police Department Forensic Services Section | Hagerstown Police Department Western Maryland Regional Crime Lab | Maryland State Police Crime Laboratory Division | Montgomery County Police Department Crime Laboratory | Ocean City Police Department | Office of the Chief Medical Examiner | Prince George's County Police Department Crime Laboratory |
|---|--|---|--|--|--|--|---------------------------------|---|---|
| 6a Are they reviewed and if necessary updated annually? | YES | NO Historically Some annual , others sporadic Annual review will be mandatory | YES | N/A | YES | N/A | N/A | N/A | МО |
| 7. Do all newly hired or assigned personnel undergo a documented training program in the assigned discipline to assure they are adequately trained? | YES | YES | YES . | NO | YES | N/A See above | N/A | YES | YES |
| 7a. After completion of training do all newly hired or assigned personnel undergo competency testing in the discipline prior to performing casework? | YES | YES | YES | YES Only hired trained and certified personnel in pasi | YES | N/A See above. | N/A | YES | YES |
| 7b After completion of training do all newly hired or assigned personnel undergo moot court in the discipline? | NO depends on experience | NO All but 2 units do moot courts | NO depends on experience | NO | YES Personnel hired with experience may be credited with satisfactory completion of moot court by presenting proof of prior court experience | N/A See above. | N/A | NO | YES |
| 8. Does your laboratory participate in an external proficiency test program? | YES | YES | YES | YES | YES | YES | NO | YES | YES |
| 8a Are the proficiency test providers approved by the ASCLD/LAB Proficiency Review Committee? | YES | YES | YES | YES | YES | YES | NIA | Ю | YES |
| 8b.b.) If not by ASCLD/LAB, are they certified by another certifying/accrediting body? | N/A | N/A | N/A | N/A | N/A | N/A | N/A | YES College of American Patriologists | YES |
| 9.Does your laboratory participate in a BLIND proficiency test program? | NO | NO | NO Formerly did CDS | NO | YES CDS only | NO | МО | NO | NO |
| 9a.Would your laboratory participate in a BLIND proficiency test program developed amongst laboratories within the state? | | NO Time restraints due to caseload. Staff would not have time to prepare. | YES | YES | YES Procedures must be well documented with reference materials traceable to certified standards | YES | YES | NO | YES |
| 10. Is each examiner proficiency tested annually in each sub-discipline for which casework is performed (DNA analyst - biannually)? | YES | YES | YES | YES | YES | YES | NO | ANA | YES |
| 10a Does your laboratory have a written procedure for corrective actions? | YES | Generic prototype, two units have specific procedures, others being written | YES | NO . | YES | NO | N/A | YES | YES |

| AGENCY | Anne Arundel County Police Department Crime Laboratory | Baltimore Police Department Laboratory Section | Ballimore County Police Department Forensic Services Section | Hagerstown Police Department Western Varyland Regional Crime Lab | Maryland State Police Crime Laboratory Division | Montgomery County Police Department Crime Laboratory | Ocean City Police Department | Office of the Chief Medical Examiner | Prince George's County Police Department Crime Laboratory |
|--|--|--|--|--|--|--|---------------------------------|---|---|
| 11.Does your laboratory monitor testimony of examiners annually? | YES | YES Limited, sume persented seldom go to court. Supervisors attempt to observe, but heavy caseloads & chronic marpower shortages due not allow the time. Supervisors cented (Table's Allorneys | YES | NO Gets leedback from State's Attorney | YES | мо | YES | N/A | YES |
| 12.How many of your examiners are certified or are seeking certification in specific disciplines by ABC? | 1 cert GK, 2 seeking Biology, 4 seeking Drugs | 1 GK, 1 Frace | 1GK | 2 GK, I Drugs | None | 2 Biology, 2 Drugs | None | NA | 1 GK |
| IAI? | N/A | 4 Laturi | (Seeking) 2 Latent 1 Shoewear/Tuelracks 3 Come Scure | None | l Footwear/Tirelracks, 3 Latents, 1 Crime Scene | N/A | N/A | N/A | None |
| AFTE? | N/A | None | (fueam | N/A | 1 Firearm, Dislance & Toolmarks | N/A | N/A | N/A | None |
| Other? | DriMH (drug) | 17 (NHMH (ding) | 5 (14 MA) (ding) | Di Mil (drug) | DHMH (drug) | DHMH (drug) | DHMH (drug) | American Board of Forensic Toxicology -2 | DHMH (drug) |
| 13. Does your laboratory have written procedures and requirements for case Jucumentation? | YUS | YES Gamaicar OA Maoual spords 5 00 and Logic | YES | . YES | YES | NO | YES | YES | YES |
| 14 Are your case reports administratively reviewed to ensure they are complete, concise and within laboratory policy before being released outside of the laboratory? | YES | YES | YES | YES | YES | YES | YES | YES | YES |
| 14a lf so, what percentage? | 100% | 100% Chugs Firewins Mobile & Trace, 99% Latients | 100% all disciplines | | 100% | 100% | 100% | 100% | 100% |
| 15 Are case reports in each discipline peer reviewed for technical correctness before being released outside of the laboratory? | YES | YES | YES | YES | YES | YES | МО | YES | YES |
| 15a il so, what percentage? | 100% | 100% (Augs 5 Finearus - 11%) Trace - 33% Latents - MA Minute | 100% all and the Brings 20NA, 100% all metagenest derethications for latents: short-agul 34, 936%, firearms & toolmans, 11, 9, 00, N/A 1 roles Scatte. | | 100% CDS & DNA, Latent Prints - 6 cases per examinat or 20% of cases/ month/discipline | 100% | | 100% | 100% |

| AGENCY | Anne Arundel County Police Department Crime Laboratory | Baltimore Police Department Laboratory Section | Baltimore County Police Department Forensic Services Section | Hagerstown Police Department Western Maryland Regional Crime Lab | Maryland State Police Crime Laboratory Division | Montgomery County Police Department Crime Laboratory | Ocean City Police Department | Office of the Chief Medical Examiner | Prince George's County Police Department Crime Laboratory |
|---|--|--|--|--|--|--|---------------------------------|---|---|
| 16. Does your laboratory have written procedures for the handling of evidence (i.e., sealing, laheling, chain of custody, sample integrity, preservation, and discrepancies)? | YES | YES | YES | YES | YES | YES | YES | YES | YES |
| 16a Does your laboratory have an electronic evidence tracking system? | YES | NO in Lab, YES in Property have received grant funding for LIMS Uncertain if LIMS will connect to Property Room | YES | NO Does computer tracking, manual data input | YES Quetel System for CDS only | YES In-house Microsoft Access System | | NO | МО |
| 17. Does your laboratory have written procedures for ensuring the quality and reliability of reagents and standards (i.e. labeling, storage, handling, logging, testing)? | YES | YES for Drugs, Mobile Trace only None in Firearms & Latents | YES | YES | YES | YES DNA only | YES | YES | YES |
| 18.Does your laboratory have written procedures for the scientific validation and verification of new technical methods prior to being used in casework? | 1 11-5 | YES Genetic protocols in prototype QA Manauel | YES | NO | YES | YES DNA only | NO | YES | YES |
| 19. Does your laboratory have written procedures for quality control testing of instruments/ equipment? | YES | YES QA testing conducted on instruments in Drugs, Trace & DNA DNA has written procedures | YES | YES | YES | YES DNA & Drugs | NO | YES | YES |
| 19a. Does your laboratory have preventive maintenance contracts for your instruments/ equipment? | YES | NO Service contracts frowned upon (budgetary restraints) Lack of service contracts delays repairs, increasing backlogs | YES | NO | YES | YES | NO | YES | YFS |
| 20.Does your laboratory have written procedures for addressing analytical discrepancies? | YES | YES for Drug & Latents ont None in Firearms, Mobile & Trace | YES | YES | YES | иО | МО | МО | YES |
| 21.Do your laboratory procedures incorporate ASCLD/LAB Standards and Criteria ? | YES | YES | YES | NO . | YES | ОИ | YES | по | YFS |
| American Society of Testing and Materials (ASTM) Standards? | NO | YES | YES | МО | YES | NO | NO | МО | ио |
| Scientific Working Groups (SWG) Guidelines? | YES | YES | YES | YES | YES | YES | YES | МО | YES |
| DNA Advisory Board Guidelines? | YES | YES | YES | NO | YES | YES | NO N/A | ОО | v1 S |

| | AGENCY | Police Department Crime Laboratory | Department Laboratory Section | Determine County Police Department Forensic Services Section | Hagerstown Police Department Western Maryland Regional Crime Lab | | Montgomery County Police Department Crime Laboratory | Ocean City Police Department | Office of the Chlef Medical Examiner | Prince George's County Police Department Crime Laboratory |
|---|--|---------------------------------------|---|--|--|------|--|---------------------------------|---|---|
| u | International Organization for Standardization (ISO) ISO 170257 | NO | NO ISO applied insofar incorporated at ASCLUAAB | Some | NO | | NO | МО | NO | NO |
| 1 | Other? | None | None | None | None | None | None | NO | | None |

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|---|--|---|--|---|---|--|---|---|--|
| 22. Does your laboratory send evidence to other laboratories to be analyzed? | YES | YES | YES | YES | NO | YES | YES | YES | YES |
| 22a.if yes, what type of evidence? | DNA, Frace, GSR | DNA, DWI , buffets (elemental), some drug substances, & latents for methods not available | Trace (hiring trainee for trace analysis), DNA (Mitochondrial, Y Chromosome, paternity), GSR, Arson, OD(until position filled) | Performs all CDS, some presumptive tests ,photo work, & bloodstain pattern analysis. Sends out all other. | Evidence may be sent to other labs, but it is by the submitting agency | DNA to MSP & Cellmark, GSR & glass to MSP | Drug - only when unsure or for second opinion | Blood | DNA (Milochontrial, STR) |
| 22b.b.) If yes, is this evidence analyzed by an accredited or certified taboratory? | YES MSP & Collinark | YES MSP. FBJ. DEA, U.S. Secret Sorvice | YES MSP, FBI, Cellmark Some unusual evidence has gone to a non ASCLDMAB accredited lab such as paturuly rape cases to Rh Typing, acid identification to Gascoyne Labs, etc | YES MSP&FBI | | YES MSP & Cellmark | YES MSP | NO | Bode technology Group (NFSTC), MSP & FBI (ASCLD/LAB) |
| 22X. Does you laboratory receive rape evidence which has been collected by forensic nurses who are trained through or participate in a forensic nursing program such as S.A.N.E. (Sexual Assault Nurse Examiner), S.A.R.T. (Sexual Assault Response Team) or S.A.F.E. (Sexual Assault Forensic Examiner)? | YES | YESSAFE | YES SAFE | мо | YES | YES SANE. | NO | NO | YESSANE |
| 23.ls your laboratory accredited? | YES | NO | YES | NO | YES | NO | NO | YES | NO |
| 23a.if so, by whom? | ASCLO/LAB | N/A | ASCLD/LAB | N/A | ASCLD/LAB | N/A | N/A | American Board of Forensic Toxicology and National Association of Medical Examiners | NIA |
| 23b. If not, is your laboratory seeking accreditation through ASCLD/LAB? | | YES | Seeking ASCLD/LAB accreditation for Crime Scene | NO Perhaps in the future | N/A | N/A | N/A | NO | N/A |
| 23b. Other? | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 23c. If seeking accreditation, what is your expected date of completion? | | 2002 Dependent on grant funds, budgetary restraints, records storage, chronic manpower shortage | 2002 Crime Scene | N/A | N/A | N/A | N/A | N/A | nus. |
| 24.ff NOt accredited, please respond to the following: a Does your laboratory want to seek accreditation in the future? | | YES | N/A | YES | N/A | YES | Yes | N/A | YES the interpolated department with the comment of |

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|--|---------------------------------------|---|---|---|--|--|---------------------------------|---|---|
| 24b.Do you feel your laboratory has sufficient support from your agency to seek accreditation? | YES it did | NO Command staff support questionable. Support goes-to sworn patrol needs not to support staff (I e , lab) | N/A | NO Not unless mendated or could be proven to be cost-effective. Would require additional staff. | N/A | YES Support is there, except for sufficient personnel. | NO | N/A | YES |

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|---|--|--|--|--|---|---|-------------------------------------|---|--|
| 24c. Would your agency provide funding for laboratory improvements/needs in order to meet accreditation requirements? | | Uncertain due to budgetary restraints | N/A | YES II organized state plan implemented & some funding provided | NIA | , YES Expense would be minimal | Only if required | N/A | YES |
| 24d. Would your laboratory seek grant funding for accreditation if evailable? | | YES Doing presently | N/A | YES Only can occur with some funding or personnel assistance | N/A | YES | YES | N/A | YES |
| 24e.Would your laboratory seek accreditation if required for receiving federal grant funds? | | YES | N/A | YES | N/A | YES | YES | N/A | YES |
| 241 Would the State of Maryland making accreditation mandatory be helpful? | | YES State must realize budgetary limitations of jurisdictional agencies & reprecussions if a lab fails to achieve accreditation. Suggestion State should pay entire cost if mandatory. | N/A | YES | N/A | YES | YES | NO | YES it would give us a push to move on accreditation |
| 24g if not, explain? | | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 24h.What does you laboratory need in order to seek accreditation? | | Increased funding for personnel & equipment upgrades, Support of Command Staff & local government Grant funding would be useful, but are short-term Then local government must assume sufficient funding for lab functions | N/A | Additional personnel to perform accreditation duties & maintain/update manuals, procedures, etc. Additionally need a new facility(being explored) & funding | N/A | Time, personnel, one person dedicated to seeking/preparing for accreditation. | Funding for updated instrumentation | N/A | A Lab Director and consolidation under one common (JACAC deology |
| 25 Additional Comments | | ASCLDIAB Manual too generic to provide sufficient guidance for accreditation preparation. Experienced laboratories, which have experienced inspection process, have indicated that ASCLDIAB inspection on cartam points not defineated in the ASCLDIAB Manual Inspection costly & many labs do not pass which will be beneficial to tabs, with finited thancial resources if manual was more specific. This might promote standardization throughout the forensic community. | | Lab consists of only 2 forensic chemists. Accreditation would require additional personnel to perform paperwork duties. Currently forensic chemists cross-check all work, review instrumental data, etc. Feel do quality work Analytical results have never been contested. Conservative regarding analytical results. | t atword es ार्यक्रमात् & evidence storique प्रमानकार Pso De addressed as per ार , ARXI program | | | · | |